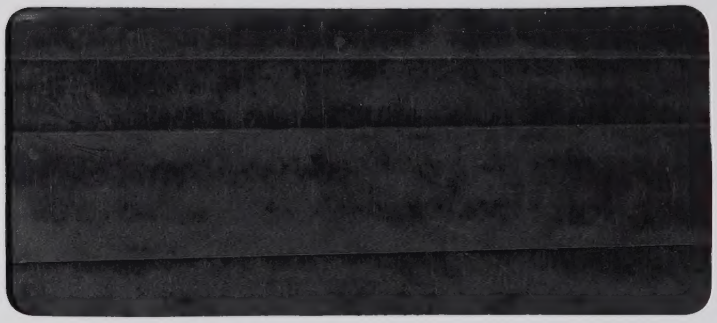
wilcom

wilcom products, inc., laconia, n.h.
BOX 508 • D.W. HIGHWAY 03246 U.S.A.
TEL. 603/524-2622 TWX 510-298-1120

MP MASTER
MA30811



wilcom

MODEL T303/T303B
SIGNALING SENDER

Instruction Manual

wilcom products, inc., laconia, n.h.
BOX 508 • D.W. HIGHWAY 03246 U.S.A.
TEL. 603/524-2622 TWX 510-298-1120

Digitized by the Internet Archive
in 2025

https://archive.org/details/manualsplus_05674

PART NUMBER: 06808794
Issue 3, December 1982

MODEL T303/T303B
SIGNALING SENDER

Instruction Manual

WARRANTY

ALL WILCOM products are warranted against defects in materials and workmanship. This warranty applies for a period of one year from date of delivery, except in specialized cases where a different period may be specified for particular items.

WILCOM'S obligation under this warranty is limited to servicing or adjusting each instrument returned to its factory within the warranty period, and to replace any components which are found to be defective. If in Wilcom's judgement the defective condition is a result of misuse or abnormal operation, repairs will be billed.

If faulty conditions develop, notify WILCOM for instructions. Servicing information will be supplied wherever possible. If the equipment is to be returned for repairs, please include a description of the faulty condition and who should be contacted if additional information is needed. Ship the equipment prepaid.

PROPRIETARY INFORMATION

The information contained in this manual is the proprietary material of Wilcom Products, Inc., and may not be reproduced, used for manufacturing purposes, or disclosed to others for any use without written permission from Wilcom Products, Inc.

PART NUMBER: 06808794
Issue 3, December 1982

CONTENTS

Section	Description	Page
1.0	General	
	1.1 Description	1-1
2.0	Specifications	
	2.1 Operational	2-1
	2.2 Electrical	2-1
	2.3 Environmental	2-1
	2.4 Physical	2-1
3.0	Panel Controls and Connections	
	3.1 General	3-1
	3.2 Power	3-1
	3.3 Input/Output Connections	3-1
	3.4 Interface and Supervision Controls	3-2
	3.5 Pulsing Controls	3-3
	3.6 Miscellaneous	3-4
4.0	Operation	
	4.1 Power	4-1
	4.2 Interfacing 2-wire circuits having dc loop supervision	4-1
	4.3 Interfacing 4-wire circuits having dc loop supervision	4-2
	4.4 Interfacing 4-wire circuits having SF supervision	4-2
	4.5 Interfacing 4-wire circuits having E&M supervision	4-3
	4.6 Send Level Setting	4-4
	4.7 Pulsing Functions	4-4
5.0	Circuit Description	
	5.1 General	5-1
	5.2 Interface and Power Supply	5-1
	5.3 CPU/Tone Generator	5-1
	5.4 Keyboard	5-2
	5.5 -48 Volt Power Supply	5-2
6.0	Maintenance-Alignment and Calibration	
	6.1 General	6-1
	6.2 Power Supply Adjustment	6-1
	6.3 Low Battery Cutoff Adjustment	6-2
	6.4 Output Level Adjustment	6-2
7.0	Assembly and Schematic Drawings	
	7.1 General	7-1
8.0	Parts Lists	
	8.1 General	8-1
	8.2 Ordering Information	8-1
9.0	Backdating Information	
	9.1 General	9-1
10.0	Difference Data	
	10.1 General	10-1

Appendix A DTMF Tone Pairs
Appendix B MF Tone Pairs

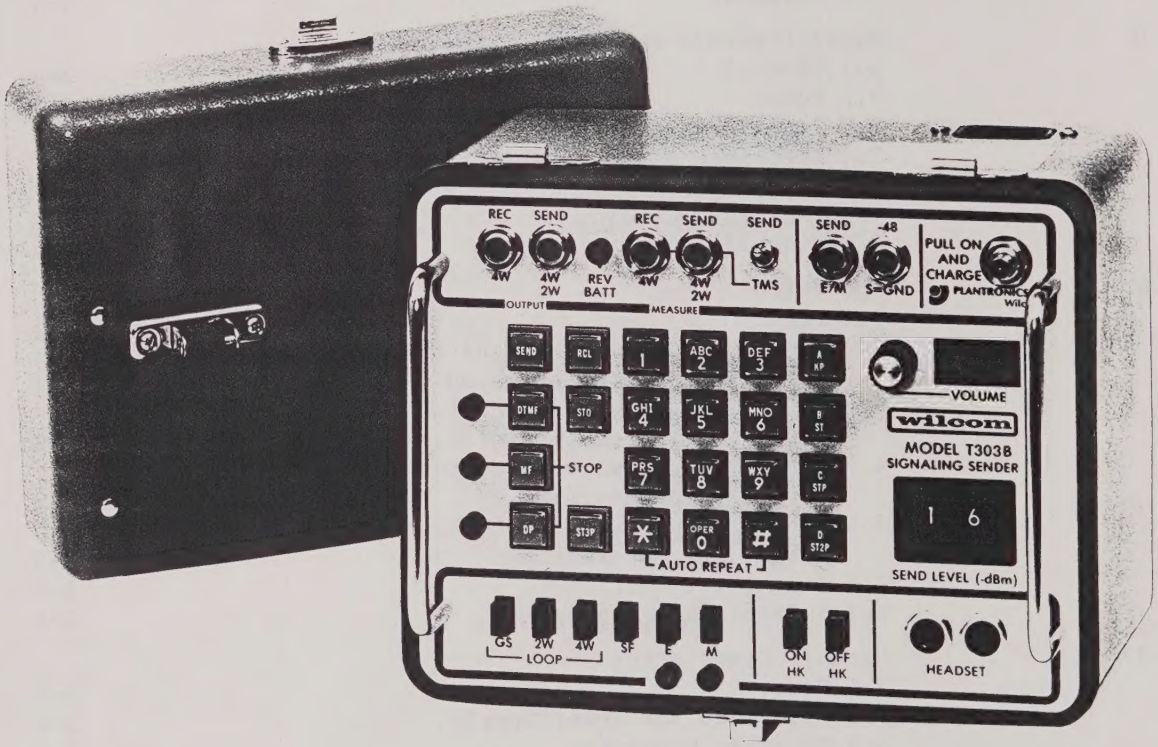


Figure 1-1

Wilcom Model T303B
(serial numbers 151 and above)

1.0 GENERAL

1.1 Description

1.1.01 The Model T303/T303B is a general purpose, microprocessor-controlled, portable sender designed for field or central office use. Its purpose is to provide DTMF, MF and Dial Pulse Signaling on the following circuit types:

- 2 wire loop
- 4 wire loop
- 4 wire SF
- 4 wire E&M

Supervision on these circuit types may be loop, SF or E&M. A reverse battery indicator is provided for loop type signaling employing reverse battery wink.

1.1.02 The Model T303B includes indicators to provide a display of E&M lead status.

1.1.03 The unit features self contained operation, powered by a rechargeable battery pack, making it ideal for field operations such as:

1. Circuit Acceptance Testing (dial through).
2. Trunk Maintenance.
3. Transmission Testing (with a TMS).

1.1.04 The internal monitor speaker and headset-jacks allow voice communications over the circuit being tested.

2.0 SPECIFICATIONS

2.1 Operational:

Tone Outputs:
DTMF - 0 thru 9,A,B,C,D,*,#.
MF - 0 thru 9,KP,ST,STP, ST2P,ST3P.
SF - 2600 Hz.

Output Level:
0 thru -39 dBm; 1 dB steps thumbwheel setting is per tone for DTMF and MF.
SF On Hook level is 13 dB below thumbwheel setting.
SF Pulsing level is 1 dB below thumbwheel setting.

Level Accuracy: ±1.0 dB

Frequency Accuracy:
DTMF and MF - ±0.5%
SF - ±1.0 Hz

Pulse Timing:
DTMF - 68 ms tone on, 68 ms tone off
MF - 68 ms tone on, 68 ms tone off (except KP which is 100 ms tone on)
DP - 10 pps, 60% break

Pulsing Accuracy: ±2 ms

Interdigit Time: (DP mode) 700 ms ±2 ms

Auto Repeat Interval: Selectable 1 thru 10 seconds in 1 second increments.

Output Impedance: 600 ohms ±10%

Input Terminating Impedance: 600 ohms ±10%

E&M Detectors
E lead threshold: -9 volts
M lead threshold: -24 volts
E or M lead input impedance: 50K ohms or greater

2.2 Electrical:

115 Vac or 230 Vac ±10%, 50/60 Hz (factory option)

Battery Operation:
Internal rechargeable battery pack.
Charge Time: 14 hours.
Operating Time: 5 hours.

2.3 Environmental:

Operating Temperature: 0 to 50°C
Humidity: 95% at 35°C
40% at 50°C
Storage Temperature: -55°C to +70°C
Altitude: (non-operating) 15,000 meters

2.4 Physical:

Height: 6.00 in. (152 mm)
Width: 7.87 in. (200 mm)
Depth: 5.75 in. (146 mm)

Weight: 6.3 lbs. (2.8 kg)

3.0 PANEL CONTROLS AND CONNECTIONS

3.1 General

3.1.01 This section describes the functions of each switch, lamp and jack located on the front panel of the Model T303/T303B. The description will be broken down into sections relating to power, input/output connections, interface and supervision controls, pulsing and miscellaneous.

3.1.02 Push button action definitions -

(1) Momentary: The switch remains in only as long as it is pressed. The switch returns to its original position as soon as pressure is removed.

(2) Interlocking with lockout: Consists of two or more switches. When any switch in a group is pressed, it automatically releases any other switch that was engaged. No two interlocking buttons may be pressed at one time. The switch function continues until released by pressing another switch in the group.

(3) Engaged: The "in" or low profile position.

(4) Released: The "out" or high profile position.

3.2 Power

3.2.01 PULL ON AND CHARGE Switch - This push-pull switch applies power to the set for operation and to charge the internal ni-cad batteries.

3.2.02 ac Power Receptacle - This is a 3-prong male plug recessed in the case side of the test set. The line cord supplied with the T303 supplies ac power through this connection.

3.3 Input/Output Connections

3.3.01 OUTPUT: REC:4W, SEND:4W-2W Jacks - These two 310-type jacks provide the connections between the Sender and the following signaling Circuits: 2 wire or 4 wire loop, 4 wire E&M, 4 wire SF.

3.3.02 MEASURE: REC:4W, SEND:4W-2W Jacks - These two 310-type jacks are connected in parallel with the OUTPUT: REC:4W, SEND:4W-2W Jacks. A transmission measuring set may be connected to the signaling circuit through these jacks.

3.3.03 SEND/TMS Switch - In the SEND position, the T303/T303B monitor and pulsing circuits are connected to the REC, SEND jacks. In the TMS position the T303/T303B circuits are removed from the MEASURE/OUTPUT jacks.

3.3.04 SEND: E/M Jack - This 310-type jack provides the connection for E-lead pulsing (open/ground) on the tip and M-lead pulsing (ground/battery) on the ring.

3.3.05 -48 (S=GND) - During E&M operation of the set using the internal batteries, central office -48 volts and ground must be connected to this jack to provide the potentials for dc supervision and pulsing. When the set is powered from ac mains, the T303/T303B internal power supply provides the -48 volts and ground for E&M operation.

3.4 Interface and Supervision Controls

3.4.01 LOOP:GS - This momentary action button places a ground potential on the ring of the SEND jacks while pressed.

NOTE: Central office ground must be provided to the T303/T303B at the -48 jack when ac power is not connected to the unit.

3.4.02 The five interlocking with lockout interface control buttons provide the internal connections for the individual signaling functions as follows:

a. LOOP:2W - This button, when engaged, connects only the SEND:4W-2W jacks to the internal dc pulsing, and monitor circuits.

b. LOOP:4W - This button, when engaged, connects the SEND:4W-2W and REC:4W jacks to the internal dc pulsing, tone pulsing, and monitor circuits.

c. SF - This button, when engaged, connects the SEND:4W-2W and REC:4W jacks to the internal tone pulsing and monitor circuits.

d. E - This button, when engaged, connects the tip of the E/M jack to the internal dc pulsing circuit for ground/open pulsing.

NOTE: Central office ground must be provided to the T303/T303B at the -48 jack when ac power is not connected to the unit and E is selected.

e. M - This button, when engaged, connects the ring of the E/M jack to the internal dc pulsing circuit for battery/ground pulsing.

NOTE: Central office -48 volt battery and ground must be provided to the T303/T303B at the -48 jack when ac power in not connected to the unit and M is selected.

3.4.03 E/M Indicators - (T303B Only) These lights display the On Hook, Off Hook and pulsing status of the E or M leads. An On Hook status on either lead causes the corresponding indicator to be lighted.

a. E - When the E button is engaged, the status of the T303B output on the E lead is displayed. When the M button is engaged, the On/Off Hook or pulsing status of the equipment E lead is displayed.

b. M - When the M button is engaged, the status of the T303B output on the M lead is displayed. When the E button is engaged the On/Off Hook or pulsing status of the equipment M lead is displayed.

3.4.04 ON HK, OFF HK - These two interlocking with lockout buttons determine the supervision for the individual signaling interfaces as follows:

Interface	ON HK	OFF HK
2W Loop	T-R; OPEN	T-R; CLOSURE
4W Loop	Simplex; OPEN	Simplex; CLOSURE
SF	2600 Hz; 13 dB below setting on thumbwheel	NO TONE
E	T; OPEN	T; GND
M	R; GND	R; BATT

3.5 Pulsing Controls

3.5.01 DTMF, MF, DP - Pressing one of these three momentary action pulse type select buttons will light the corresponding LED and instruct the T303/T303B to send any digits using the indicated pulsing type when the SEND button is pressed.

3.5.02 SEND - Pressing this momentary action button instructs the T303/T303B to send any digits previously entered or recalled from one of the nine memory locations. Pressing the button during outpulsing will stop the pulsing at the next tone off or interdigit interval. Pulsing will resume with the first stored digit when the button is released.

3.5.03 STO - Pressing this momentary action button instructs the T303/T303B to enter "store" mode. Up to nine, 20 digit numbers may be stored in memory locations 1 thru 9. To store a number at a given location, press STO followed by a single digit

(1-9) corresponding to the memory location. Now enter the number to be stored by pressing the desired digits successively. Pressing any non-digit button completes the storage operation.

3.5.04 RCL - Pressing this momentary action button instructs the T303/T303B to enter the "recall" mode. To recall a number from a given memory location, press RCL followed by the single digit corresponding to the desired storage area. The recalled number may now be sent by pressing the SEND button.

3.5.05 Digit buttons - These 16 buttons enter the individual digits for pulsing. Nominal frequencies for each digit tone pair are indicated in the appendix. The digit buttons are functional in the different pulsing types as follows:

Digit Button	Pulsing Type
0 thru 9	DTMF,MF,DP
A,B,C,D,*,#	DTMF
KP,ST,STP,ST2P,ST3P	MF

3.6 Miscellaneous

3.6.01 REV BATT Indicator - This LED will light if the polarity of the dc voltage on the tip and ring is reversed (-V on tip; +V on ring). If the circuit being tested provides a reverse battery wink start signal, the LED will flash.

3.6.02 SEND LEVEL (-dBm) Thumb wheel - This switch sets the level of the tone output. For DTMF and MF, the setting indicates the output level of the individual tone referenced to a 0 dBm Test Level Point (TLP). For SF, the setting represents the output level for the 2600 Hz tone referenced to a +7 TLP. The SF On Hook level is 13 dB below thumbwheel setting. The SF pulsing level is 1 dB below thumbwheel setting.

3.6.03 VOLUME Control - This knob adjusts the sound level on the front panel monitor speaker or the headset. The speaker is disabled when a headset is connected to the jacks provided.

3.6.04 HEADSET - This dual jack provides connection for a standard 52/53 type telephone headset or equivalent.

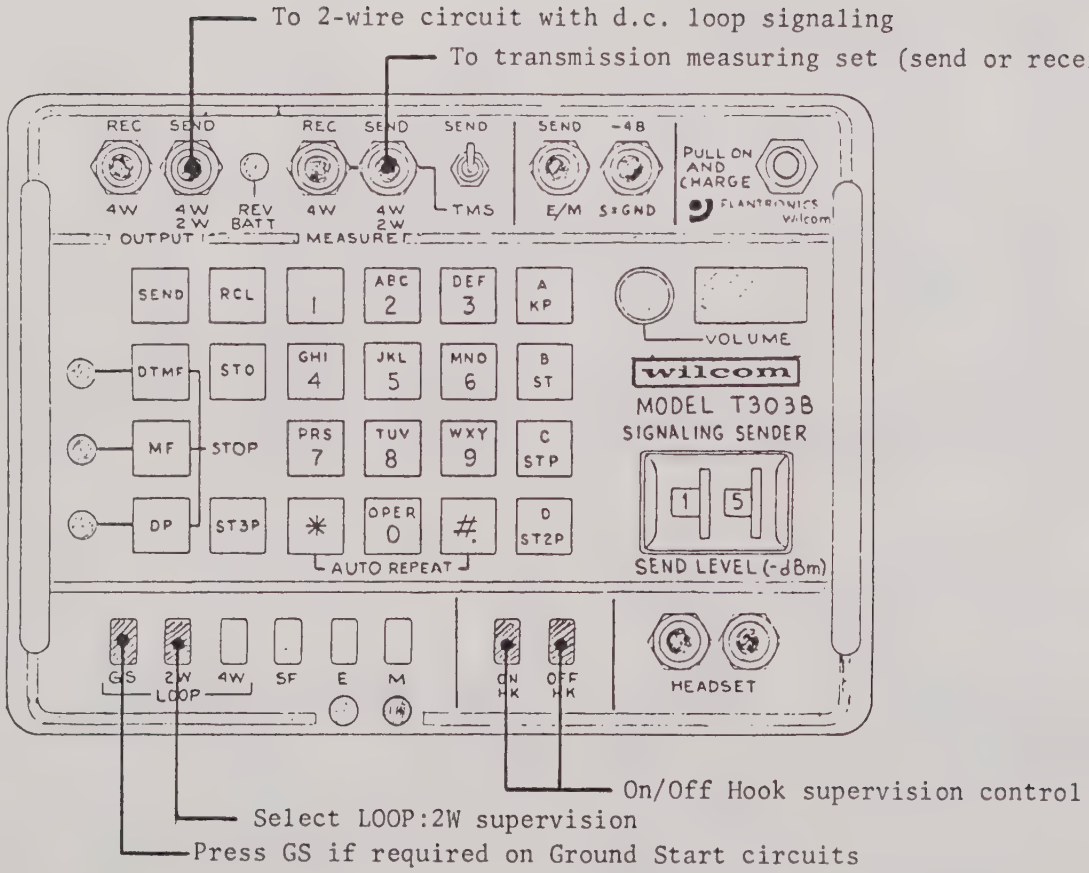


Fig 4-1 Interfacing 2-wire loops
with d.c. supervision

4.0 OPERATION

4.1 Power

4.1.01 The T303/T303B is powered by 115 volts ac or the internal rechargeable ni-cad batteries. For ac operation, connect the line cord to the recessed male connector in the side of the case. The batteries are being charged when the set is turned on with ac power applied. Battery charge time is approximately 14 hours. Operating time is approximately 5 hours.

4.1.02 When operating the T303/T303B from the internal batteries, -48V dc and ground must be connected to the set thru the -48 jack. When the set is powered from ac mains, the internal power supply provides the -48 volts and ground for E&M operation.

4.2 Interfacing 2-wire circuits having dc loop supervision

LOOP: 2W button engaged.

4.2.01 Connections

a. 2-wire loop circuits are connected to the OUTPUT/SEND:4W-2W jack for both send and receive test functions. The internal switching connects the headset/speaker monitor circuit across this jack. The output of the tone generator is connected to this jack through the dc pulsing circuit.

b. For loops requiring ground start, office ground potential must be provided at the -48 jack when ac power is not connected to the T303.

c. For transmission or noise measurements, the transmission test set (TMS) is connected to the MEASURE:SEND:4W-2W jack. Since the OUTPUT and MEASURE jacks labeled SEND:4W-2W are connected in parallel, the TMS should have a balanced, dc blocked, high impedance input to avoid possible distortion of the pulsing output.

4.2.02 Supervision

a. For loops requiring ground start, momentarily pressing the LOOP:GS button places a ground on the ring of the loop to seize the circuit.

b. The ON HK and OFF HK buttons are used to select the desired dc loop supervision circuit conditions (open and closure respectively). Once the dc pulser has provided the Off Hook closure, a hold coil provides the low resistance dc path for holding a 2-wire loop circuit.

c. The REV BATT display provides a visual indication of either the WINK signal from the far end or the presence of reverse battery polarity on the circuit.

4.2.03 Pulsing Types

a. Either dc Dial Pulsing (DP) or tone pulsing (MF,DTMF) may be used when the LOOP:2W button is engaged. The correct pulsing type for the circuit function being tested is selected by pressing the corresponding button. Three displays provide a visual indication of the selected pulsing type.

b. The keyboard pulsing functions are described in Section 4.7 and setting tone levels in Section 4.6.

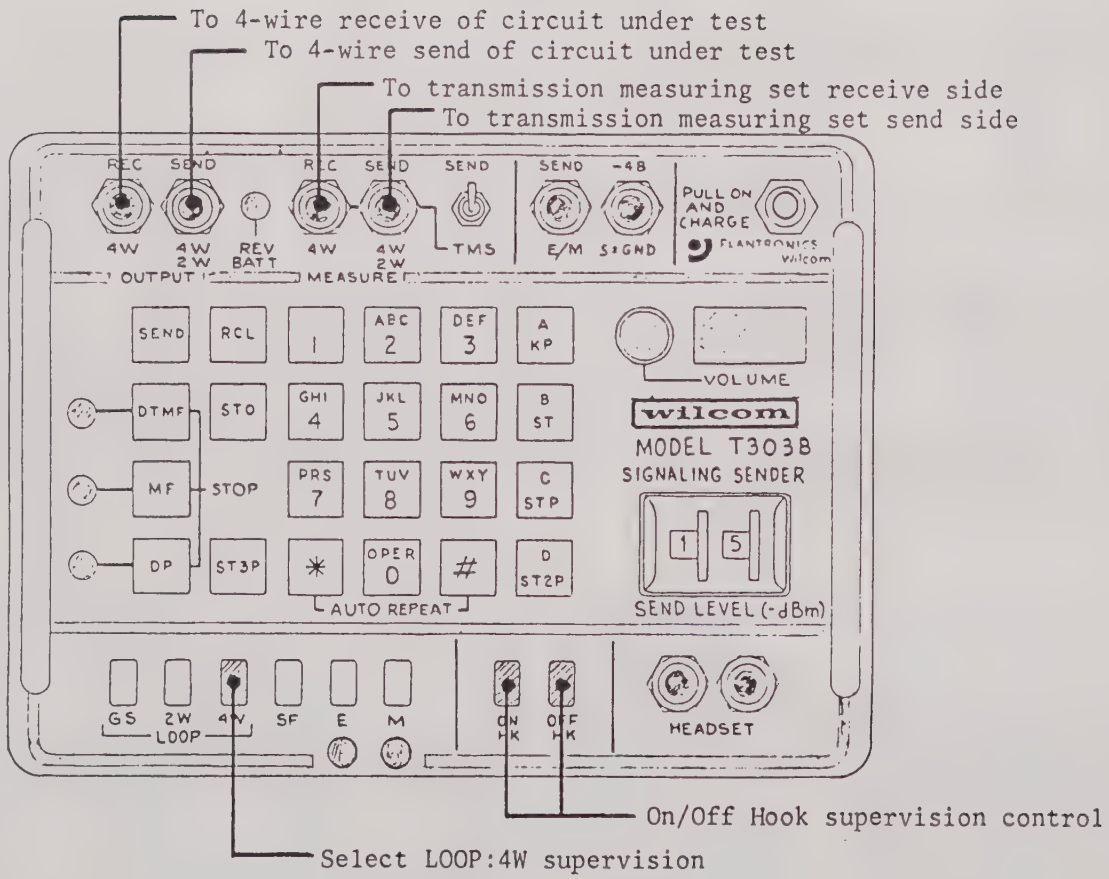


Fig 4-2 Interfacing 4-wire loops
with d.c. supervision

4.3 Interfacing 4-wire circuits having dc loop supervision

LOOP:4W button engaged.

4.3.01 Connections

a. 4-wire loop circuits are connected with the receive side to the OUTPUT:REC:4W jack and the send side to the OUTPUT:SEND: 4W-2W jack. The internal switching connects the headset/speaker monitor circuit across both REC: 4W jacks. The output of the tone generator is connected to both SEND:4W-2W jacks. The dc pulsing circuit is connected in the simplex path between the OUTPUT: SEND/REC jacks.

b. For loops requiring ground start, office ground potential must be provided at the -48 jack when ac power is not connected to the T303/T303B.

c. For transmission or noise measurements, the transmission test set (TMS) is connected with the send side to the MEASURE: SEND:4W-2W jack and the receive side to the MEASURE:REC:4W jack. Since the MEASURE jacks are connected in parallel with the OUTPUT jacks, the TMS should have a balanced, dc blocked, high impedance input to avoid possible distortion of the pulsing output.

4.3.02 Supervision

a. For loops requiring ground start, momentarily pressing the LOOP:GS button places a ground on the ring of the SEND:4W-2W jacks to seize the circuit.

b. The ON HK and OFF HK buttons are used to select the desired dc simplex supervision conditions (open and closure respectively). Once the dc pulser provides the Off Hook simplex closure the dc path through the metallic center of the simplex holds the 4-wire dc loop circuit.

c. The REV BATT display provides a visual indication of either the WINK signal from the far end or the presence of reverse battery polarity on the simplex supervision circuit.

4.3.03 Pulsing Types

a. Either dc Dial Pulsing (DP) or tone pulsing (MF, DTMF) may be used when the LOOP:4W button is engaged. The correct pulsing type for the circuit function being tested is selected by pressing the corresponding button. Three displays provide a visual indication of the selected pulsing type.

b. The keyboard pulsing functions are described in Section 4.7 and setting tone level in Section 4.6.

4.4 Interfacing 4-wire circuits having SF supervision

SF button engaged.

4.4.01 Connections

a. 4-wire SF circuits are connected with the receive side to the OUTPUT:REC:4W jack and the send side to the OUTPUT:SEND: 4W-2W jack. The internal switching connects the headset/speaker monitor circuit across both REC: 4W jacks. The output of the tone generator is connected to both SEND:4W-2W jacks.

b. For measurements of transmission, noise or SF level and frequency, a test set may be connected with the send side to the MEASURE:SEND:4W-2W jack and the receive side to the MEASURE:REC:4W jack. Since the MEASURE jacks are connected in parallel with the OUTPUT jacks, the TMS should be a balanced, dc blocked, high impedance instrument to avoid possible distortion of the pulsing output.

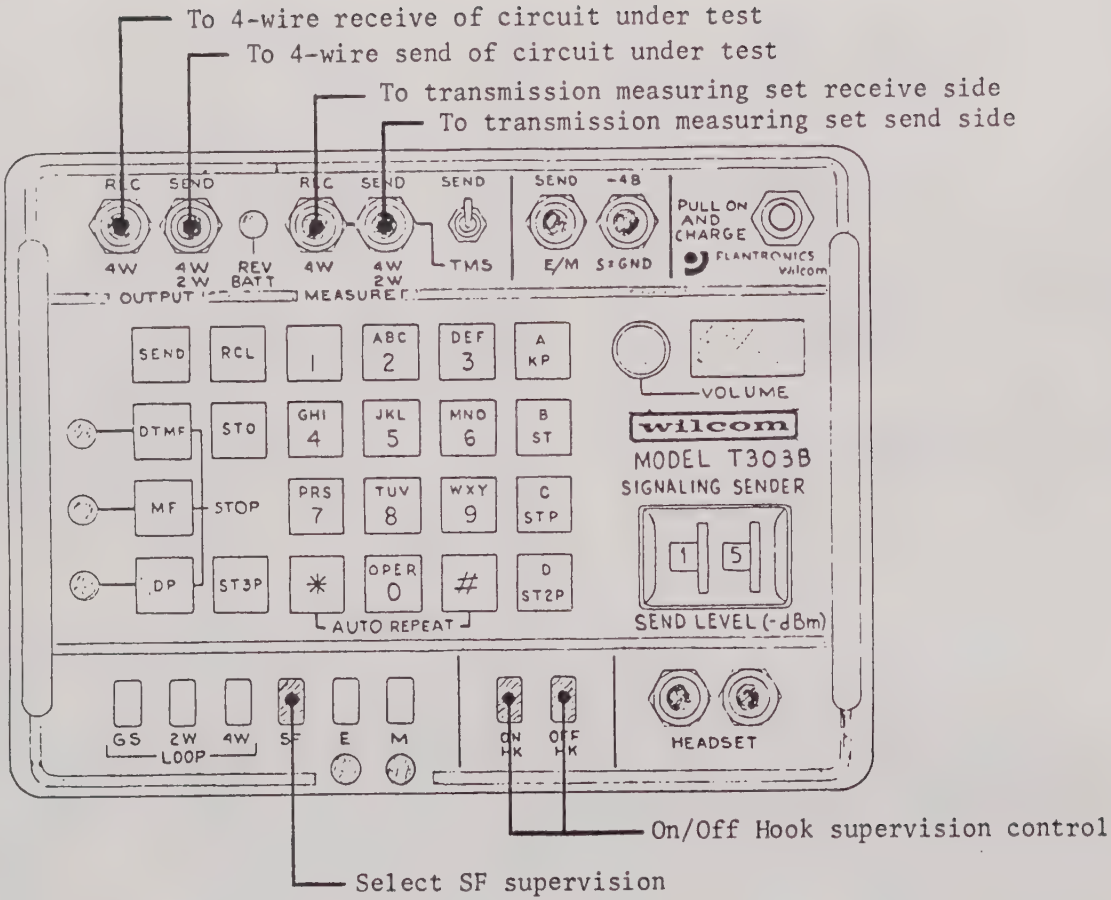


Fig 4-3 Interfacing 4-wire circuits
with SF supervision

4.4.02 Supervision

a. The ON HK and OFF HK buttons are used to select the desired SF supervision conditions for the circuit being tested. When the ON HK button is engaged, the 2600 Hz SF tone is sent at a level 13 dB below the setting of the SEND LEVEL thumbwheel. When the OFF HK button is engaged, no SF tone is sent.

4.4.03 Pulsing Types

a. Either single frequency (SF) dial pulsing (DP) or tone pulsing (MF, DTMF) may be used when the SF button is engaged. The correct pulsing type for the circuit function being tested is selected by pressing the corresponding button. Three displays provide a visual indication of the selected pulsing type.

b. The keyboard pulsing functions are described in Section 4.7 and setting tone levels is described in Section 4.6.

4.5 Interfacing 4-wire circuits having E&M supervision
E or M button engaged.

4.5.01 Connections

a. 4-wire E&M circuits are connected with the receive side to the OUTPUT:REC:4W jack and the send side to the OUTPUT:SEND: 4W-2W jack. The internal switching connects the headset/speaker monitor circuit across both REC: 4W jacks. The output of the tone generator is connected to both SEND:4W-2W jacks.

b. Central office battery (-48 Vdc) and ground is connected to the -48 jack to provide the potentials for dc supervision and pulsing when ac power is not connected to the T303/T303B.

c. Either the E lead or the M lead of Type I and Type III E&M signaling circuits is connected to the SEND:E/M jack (tip=E; ring= M). When the E button is engaged, the internal dc pulser is connected to the tip of the SEND: E/M jack to provide open and ground pulsing. When the M button is engaged, the internal dc pulser is connected to the ring of the SEND:E/M jack to provide ground and battery (-48 Vdc) pulsing.

d. For transmission or noise measurement, the transmission measuring set (TMS) is connected with the send side to the MEASURE:SEND:4W-2W jack and the receive side to the MEASURE: REC:4W jack. Since the MEASURE jacks are connected in parallel with the OUTPUT jacks, the TMS should be a balanced, dc blocked, high impedance instrument to avoid possible distortion of the pulsing output.

4.5.02 Supervision

a. The ON HK and OFF HK buttons are used to select the desired supervision condition for either the E-lead or the M-lead.

E button engaged:
ON HK - Open
OFF HK - Ground
M button engaged:
ON HK - Ground
OFF HK - Battery (-48 Vdc)

b. When the E button is engaged, the M lead is connected to ground through a 1 kilohm resistor in the T303. In the T303B the M lead is connected to a high impedance detector which controls the M indicator.

c. When the M button in engaged, the E lead is an open circuit in the T303. In the T303B the E lead is connected to a high impedance detector which controls the E indicator.

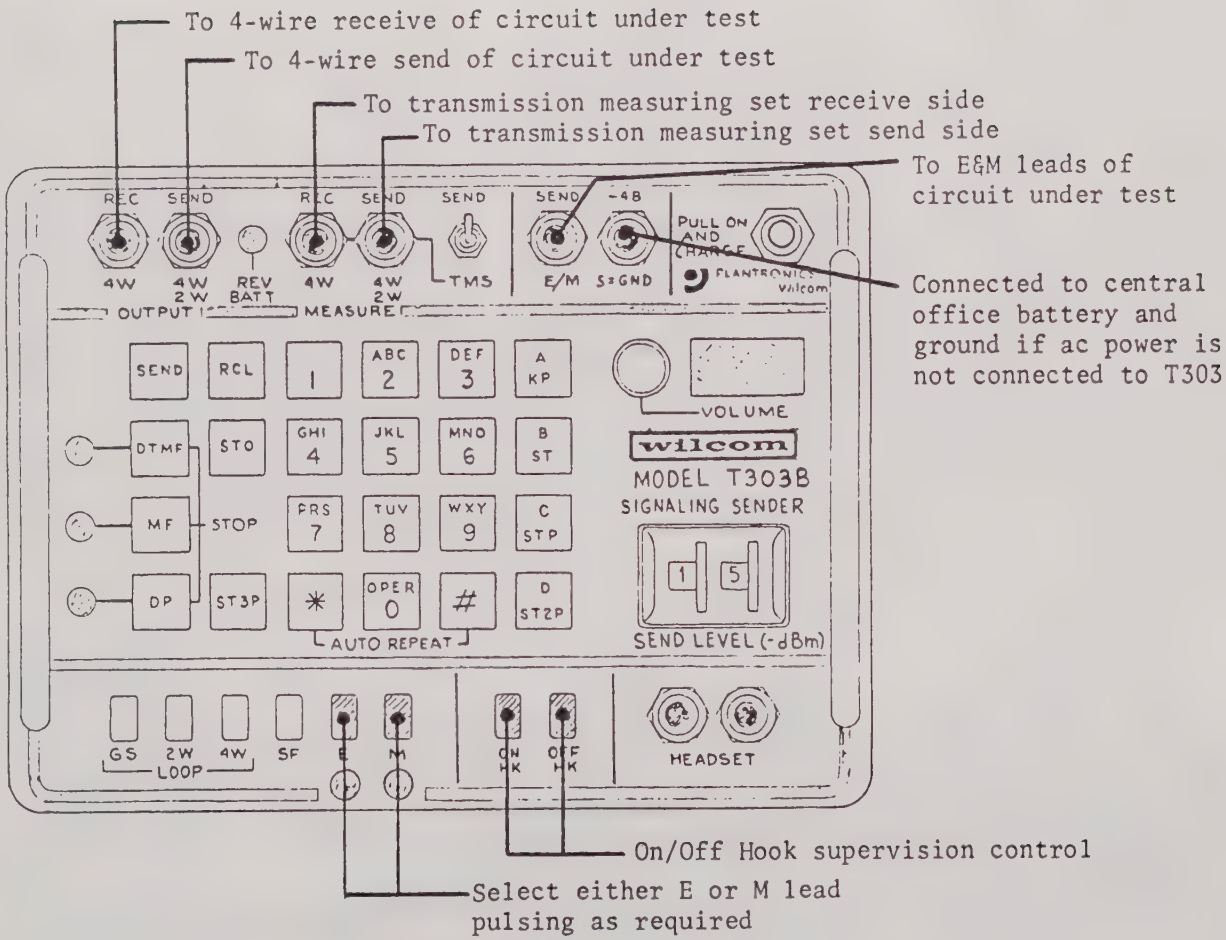


Fig 4-4 Interfacing 4-wire circuits with E&M supervision

4.5.03 Pulsing Types

a. Either dc E&M pulsing (DP) or tone pulsing (MF, DTMF) may be used when either the E button or the M button is engaged. The correct pulsing type for the circuit function being tested is selected by pressing the corresponding button. Three displays provide a visual indication of the selected pulsing type. The T303B E&M indicators will display the On/Off Hook and pulsing status of the corresponding leads.

b. The keyboard pulsing functions are described in Section 4.7 and setting tone levels is described in Section 4.6.

4.6 Send Level Setting

4.6.01 MF and DTMF Levels

a. The SEND LEVEL (-dBm) thumbwheel indicates the per tone sending level of the T303. Most MF transmitters presently used in toll switchboards, testboards, test frames, and senders have a nominal per tone level of -6 dBm at the zero transmission level point.

4.6.02 SF Levels

a. The SF On Hook sending level of the T303 is 13 dB below the SEND LEVEL thumbwheel setting. The sending level during SF pulsing is 1 dB below the SEND LEVEL thumbwheel setting.

b. When testing at the +7 TLP of a typical SF signaling system, the SEND LEVEL thumbwheel is set to "00" to provide the following levels: On Hook, -13 dBm; pulsing, -1 dBm.

c. When testing at the -16 TLP of a typical SF signaling system, the SEND LEVEL thumbwheel is set to "23" to provide the following levels: On Hook, -36 dBm; pulsing, -24 dBm.

4.7 Pulsing Functions

4.7.01 Pulsing Type Selection

a. DTMF - When this button is pressed, the T303 tone generator will output composite tone pairs with frequencies as indicated in Appendix A for each digit.

b. MF - When this button is pressed, the T303 tone generator will output composite tone pairs with frequencies as indicated in Appendix B for each digit.

c. DP - When this button is pressed, either the dc pulsing circuit or the tone generator will provide output digit pulsing depending upon the selected circuit interface type. The following table indicates the make/break pulsing conditions for each interface.

Interface	Break	Make
2W Loop	T-R; OPEN	T-R; CLOSURE
4W Loop	Simplex; OPEN	Simplex; CLOSURE
SF	2600 Hz: TONE ON	TONE OFF
E	OPEN	GROUND
M	GROUND	BATTERY

4.7.02 Sending a Number

a. Select the desired pulsing type, interface type and if using tone pulsing (DTMF, MF, SF) set the desired send level.

b. Enter the digits for the number you wish to send. Up to 20 digits may be entered.

c. Press the SEND button. The headset/ speaker monitor circuit provides an audible indication of the pulsing.

d. The number may be sent as many times as desired by repeatedly pressing the SEND button.

e. To send a new number, enter the digits for the new number and press the SEND button.

4.7.03 Storing a Number

a. Up to nine different numbers, each having a maximum of 20 digits may be stored in the T303 and individually recalled for sending. A label is provided in the cover for recording stored numbers.

b. To enter a number in the memory press the STO button followed by a single digit, 1 through 9, which represents a location in the memory. The number to be stored is then entered by pressing each desired digit button in sequence.

c. To end the storage operation press any non-digit button.

4.7.04 Recalling a Stored Number

a. To send a stored number, press the RCL button followed by the single digit, 1 through 9, which represents the memory location for the desired number.

b. Press the SEND button. The headset/speaker monitor circuit provides an audible indication of the pulsing. The number may be repeated as many times as desired by pressing the SEND button repeatedly.

4.7.05 Automatically Repeating a Number

a. To enter the automatic repeat mode, press * and # simultaneously. Then set the repeat rate by pressing a single digit button, 1 through 9 or 0, to repeat at 1 through 9 or 10 second intervals. When the interval digit is pressed, the previously entered number sequence will be sent and then repeated at the selected interval.

b. To stop the repeat operation, press one of the three pulse type select buttons.

5.0 CIRCUIT DESCRIPTION

5.1 General - This section provides a circuit description which explains the operation of the Model T303B. A simplified schematic is provided in Figure 5-1 which shows functional circuit blocks and circuit interconnection. The schematic will be helpful when studying the circuit description or when troubleshooting the unit. More detailed schematics can be found in section 7.0. The T303B can be broken down into the following circuits:

Interface and Power Supply
CPU/Tone Generator
Keyboard
-48 V Supply

5.2 Interface and Power Supply - This assembly contains the power supply rectifiers, regulators and low battery cutoff. It also contains the speaker amplifier and talk circuit along with all interfaces for circuit connection.

5.2.01 The power supply and battery charging circuit consists of one half of transformer T1, a bridge rectifier, a resistor and the battery BT1. The battery return is fused by F1. A low battery cutoff circuit consists of U2, U9, Q3 and Q4. Transistor Q4 will prevent operation of the Model T303B if the battery voltage falls below 6.6 volts. The op-amps in the T303B receive -4.5 volts unregulated power from U3, a DC-DC negative voltage converter.

5.2.02 All signals applied to the T303B are input to U4, a differential input impedance amplifier. Part of U4, U4A, converts the varying resistance of the headset's carbon microphone into a signal used for speech communication through the T303B. U5, a power amplifier is used to drive the monitor speaker LS1.

5.2.03 Additional circuitry on the Interface and Power Supply assembly includes: U8, Q1 and D6-D9 used as a bipolar dc pulser for pulsing on loop or E&M type circuits; DS4 indicates reverse current drain when a reverse battery wink is presented to the T303B in the loop signaling mode; U7C, resistors for 1 dB attenuation steps and the front panel thumbwheel form a 0-39 dB attenuator which takes tone output from U7D and decreases the level before application to output driver U7A and B; U6A blocks the transmission of tone when DP pulsing and loop signaling are both selected. U6B and C control the output of either speech from U4A or tone from U6A depending on the state of the send/talk signal; finally, hold coil L1 provides a low, approximately 175 ohm, dc resistance for holding a 2 wire loop type circuit. Holding on a 4 wire loop is established by connecting the metallic centers of the send and receive inputs via the dc pulser.

5.3 CPU/Tone Generator - This assembly contains a microprocessor and logic for number storage, keyboard scanning, tone generation and filtering.

5.3.01 The CPU, U2, executes the program object code stored in U4. A 1.664 MHz ±0.01% square wave generator consisting of U3 and Y1 satisfies the clock requirements of U2.

5.3.02 Address Decoder U1 decodes addresses output by the CPU to select PROM U4, RAM U5 or U6, keyboard buffers U15 and U16 and latches U9, 12 and 14. Address lines A0-A2 scan the rows of the keyboard matrix. The matrix columns are input to the CPU via buffers U15 and U16. The system software scans the keyboard rows while checking the column data for a "high" signal indicating that

a key has been pressed. The program then determines which key has been pressed and interprets that key, executing command keys and saving digit keys.

5.3.03 Control Latch U14 drives the DTMF, MF and DP LED's on keyboard A4. The Control Latch also outputs the following control signals to the Interface and Power Supply A2;

LP - drives the loop pulser

$\overline{\text{SFLVL}}$ - switches the level of the tone output during DTMF, MF and SF pulsing.

DP - used during dc pulsing to block tone transmit.

SEND/$\overline{\text{TALK}}$ - mutes the headset transmitter while a tone is being output.

5.3.04 Additional circuitry on the CPU/Tone Generator includes; U8 and U11, which are dual programmable 4 bit divide by n counters programmed under software control by latches U9 and U12, output 10 times the frequency of the transmitted tone; U7 and U10 are decade counters whose 1 of 10 decoded outputs are sine weighted by R13 through R32; U17C sums the two 10 point sine currents output by U7 and U10; the remainder of U17 forms a six pole low pass filter which removes the clock component at 10 times the frequency output; finally, U19 forms a power failure detector which powers down the two CMOS RAMS U5 and U6 if the T303B power is switched off. BT1 continues to power the RAMS thereby protecting any numbers stored.

5.4 Keyboard - This assembly contains the three pulse type LED's, DTMF, MF and DP, along with the matrix switches which form the keyboard.

5.4.01 Electrically, the keyboard is arranged as a 3 x 8 matrix not fully populated. Address lines AØ-A2 scan the rows of the matrix while the matrix columns are input to the CPU/Tone Generator.

5.5 -48 volt Power Supply - This assembly contains a bridge rectifier, -48 volt regulator and E&M lead threshold detectors. It also provides a means of using an external -48 volt C.O. battery.

5.5.01 The E-lead threshold detector consists of U1A and Q2 while the M-lead threshold detector consists of U1B and Q3.

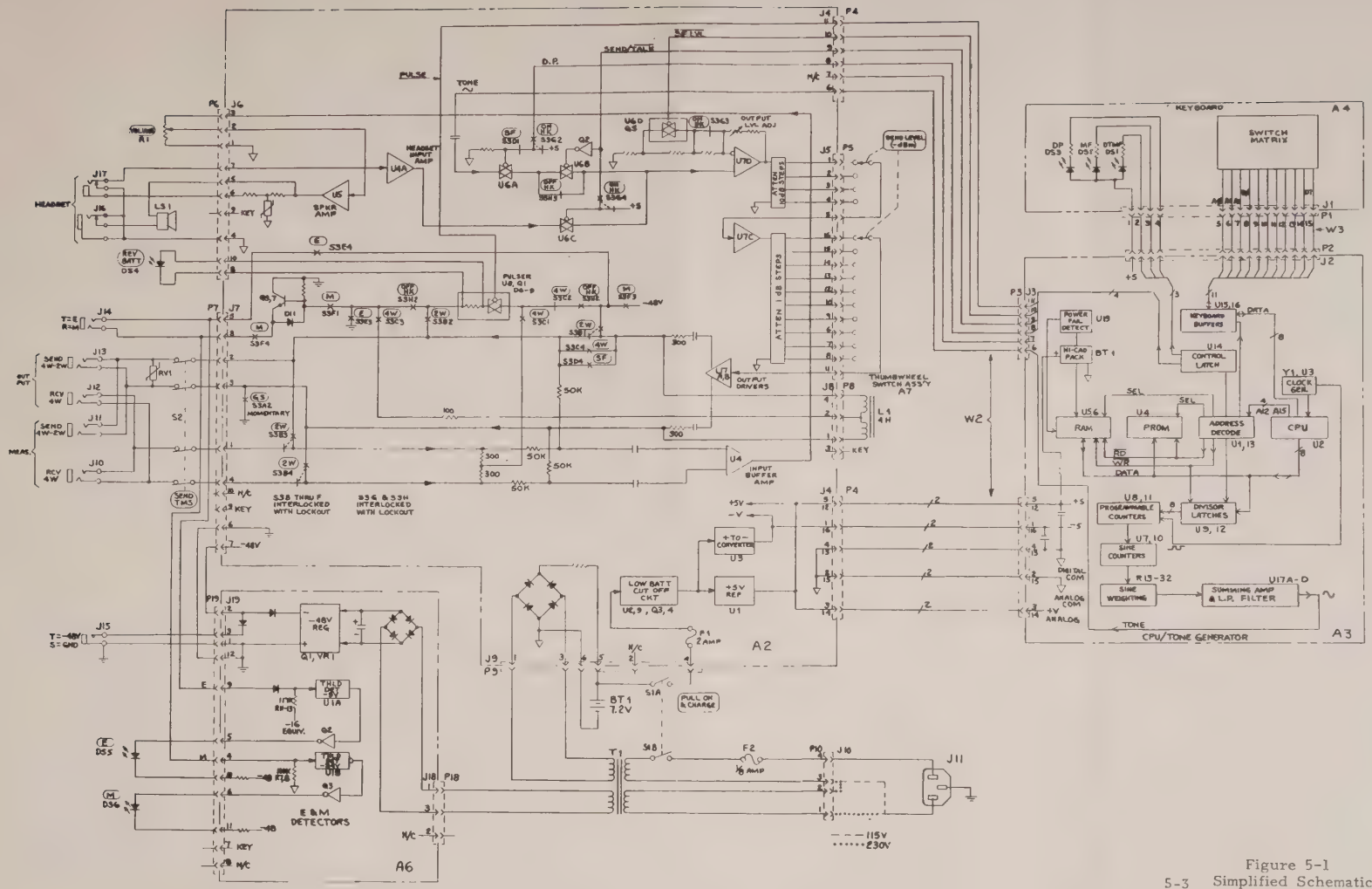


Figure 5-1
Simplified Schematic & Interconnect Diagram

6.0 MAINTENANCE-ALIGNMENT and CALIBRATION

6.1 General - This section describes procedures that may be followed in order to assure proper operation and calibration of the Model T303B Signaling Sender. The T303B is fully calibrated at the factory and should require no further adjustment. If the unit needs to be serviced, the following paragraphs will serve as a guide to the adjustments that should be checked. Refer to paragraph 6.4 for procedures to check the Output Level.

6.1.01 Repair and calibration of this unit should be performed by technicians experienced in digital circuitry and that have the facilities to adequately measure and troubleshoot digital equipment.

6.1.02 If the equipment should require service and and qualified technicians are not available, the unit may be sent to one of the following repair facilities in accordance with the WARRANTY instructions in the front of this manual.

PLANTRONICS/Wilcom
Box 508, Daniel Webster Hwy.
Laconia, NH 03247
Attn: Repair Dept.
Phone: (603)524-2622

PLANTRONICS/Santa Cruz
108 DuBois Street
Santa Cruz, CA 95060
Attn: PLANTRONICS/Wilcom
Repair Dept.
Phone: (408)426-5858

6.2 Power Supply Adjustment - This procedure enables the service technician to insure the power supply is furnishing the correct voltage levels. This procedure relates only to the Interface and Power Supply Assembly.

a. Disconnect P9 from J9.

CAUTION: The pins on P4 in the following step are very brittle.

b. Remove the flat plug P4 from J4.

c. Apply +7.2 volts to fuse F1 and common to J9 pin 6. The power supply used must have a fast rise time.

d. Check J4 pins 3,5,12 and 14 for +5 volts ±0.25 volts.

e. Check J4 pins 1 and 16 for -V of at least -4.5 volts. This voltage is unregulated.

f. If voltage levels are incorrect the cause must be located and corrected before proceeding.

g. If voltage levels are correct, continue to paragraph 6.3 or disconnect the +7.2 volt supply and reconnect P4 and P9.

6.3 Low Battery Cutoff Adjustment - This procedure verifies that the low battery cutoff circuits are working properly. If the Model T303B is allowed to operate under +6.6 volts the output level will not be accurate.

a. Conditions described in paragraph 6.2 steps a-c must be established.

b. Monitor the +5 volt supply at J4 pins 3,5,12 or 14.

c. Reduce the +7.2 volt supply to +6.6 volts and insure that the +5 volts drops out.

d. Increase the +6.6 volts to +6.8 volts, remove and re-apply the +6.8 volts and verify that the +5 volts is present at J4 pins 3,5,12 and 14.

6.4 Output Level Adjustment - This procedure provides for calibration of the SEND LEVEL output. Refer to subparagraph 3.6.02 for an explanation of the output levels of DTMF, MF and SF in relation to the thumbwheel setting. The output level may be checked and adjusted as follows:

a. Apply ac power to the T303B and verify that ac charging current is present by measuring the voltage drop across resistor R1. The voltage is nominally 2 Vrms.

b. Set the thumbwheel for "00" select SF by engaging the SF push button; set the SEND/TMS toggle switch to SEND; and engage the ON HK button.

c. Connect a true RMS voltmeter, terminated in 600 ohms ±1%, to the OUTPUT SEND/4W/2W 310-type jack.

d. Switch the unit on. Both the E and the M LED's should light along with the DTMF LED.

e. Press the MF and STO buttons simultaneously. The MF and DP LED's should light. Then press the number 5 button. The tone for digit "1" will be output continuously.

f. Engage the OFF HK button and adjust R25 for a reading of +1.094 volts ±0.003 volts on the true RMS voltmeter.

g. Turn power off and wait for the E and M LED's to extinguish. Turn power on and engage the ON HK button.

h. Using a Wilcom Model T105, T194 or similar transmission measuring set, measure the on hook SF level at the OUTPUT SEND/4W/2W 310-type jack. The level should be -13.0 dBm ±1 dB.

i. Connect a test lead across R24 on the Interface and Power Supply board. The output level should increase to -1.0 dBm ±1 dB. At this time, set the SEND LEVEL thumbwheel to all settings. The output levels should be 1 dB less than the thumbwheel setting.

j. Remove the jumper from across R24 if all settings of the thumbwheel are confirmed. If not, the trouble should be located and corrected before the jumper is removed and the unit put back into the case.

7.0 ASSEMBLY and SCHEMATIC DRAWINGS

7.1 General - This section provides all of the assembly and schematic drawings for the Wilcom T303B signaling Sender. These will be useful in troubleshooting and servicing the unit should a problem arise. Reference to the Circuit Description in section 5.0 may also prove helpful.

7.1.01 The printed circuit board assembly and the schematic associated with it are arranged side-by-side to facilitate troubleshooting and component location.

7.1.02 Each matching assembly and schematic are assigned an "A" reference designator. All components located on an assembly are understood to be prefixed by the "A" reference designator. Eg. the CPU intergrated circuit U2 on the CPU/Tone Generator is specifically identified as A2U2.

7.1.03 Specific component information may be found in section 8.0 by matching the assembly "A" reference designator, the 2xxxxxxx number or both to the appropriate parts list.

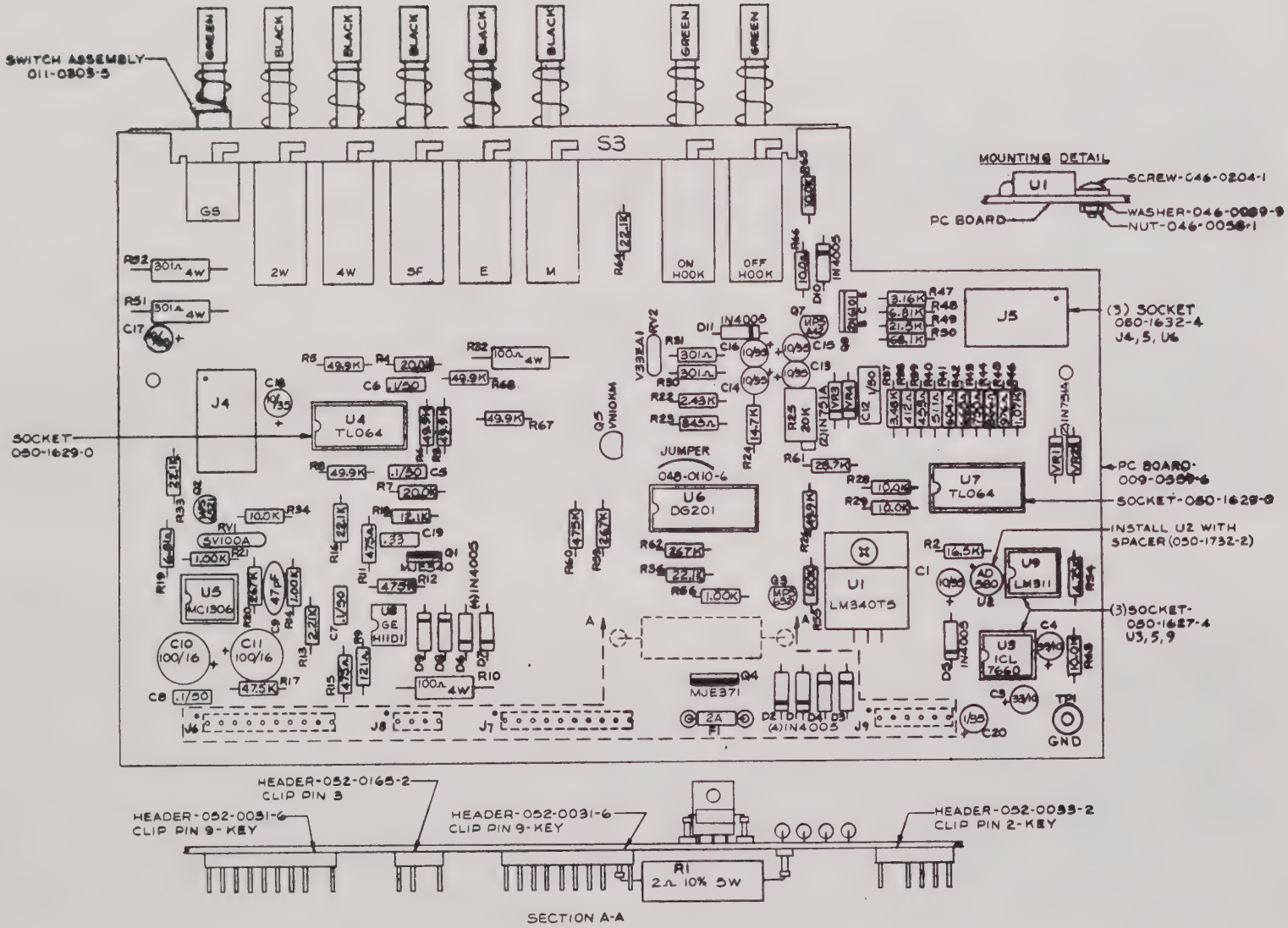


Figure 7-1
Interface & Power Supply (A2)

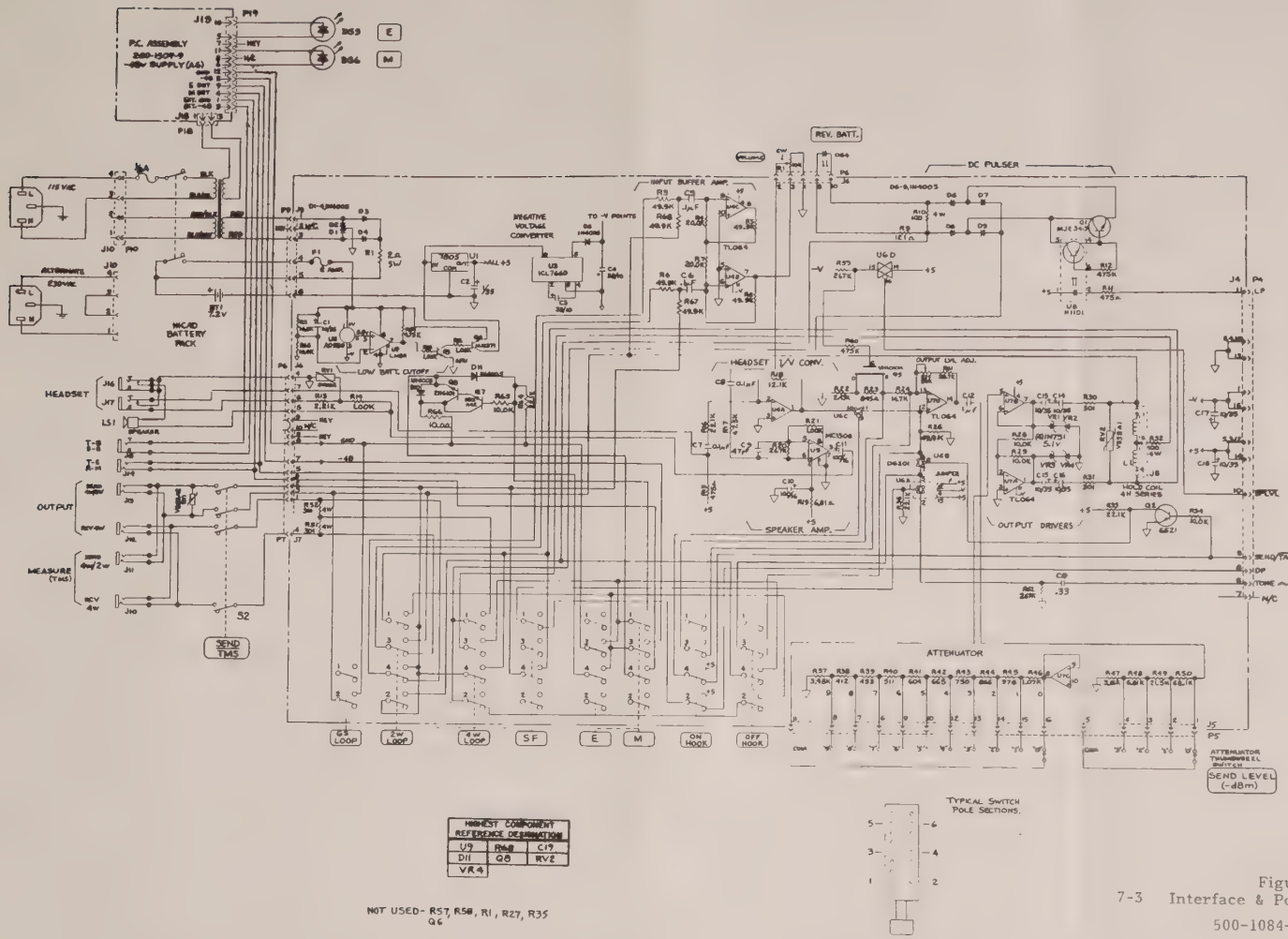


Figure 7-2
7-3 Interface & Power Supply (A2)
500-1084-2 REV E

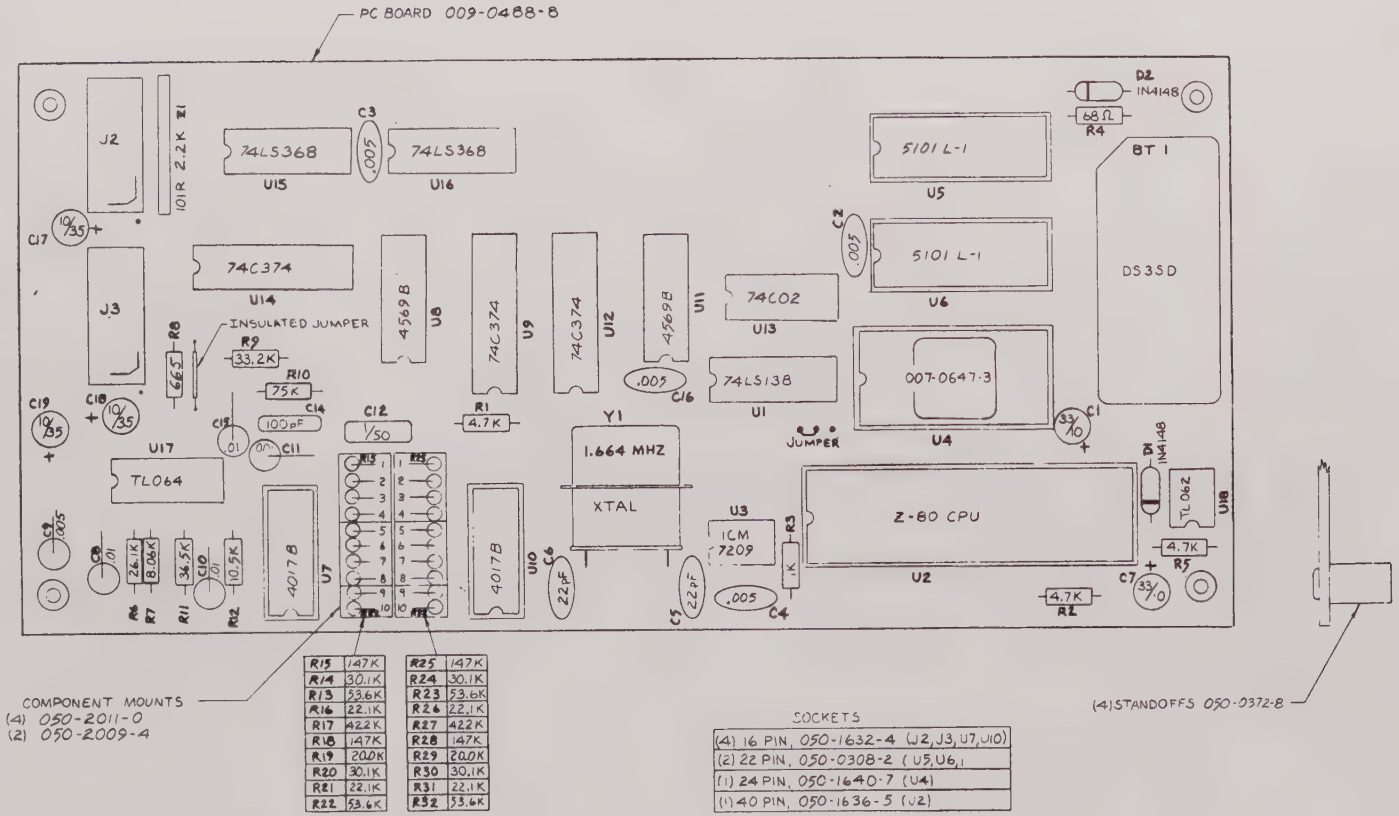
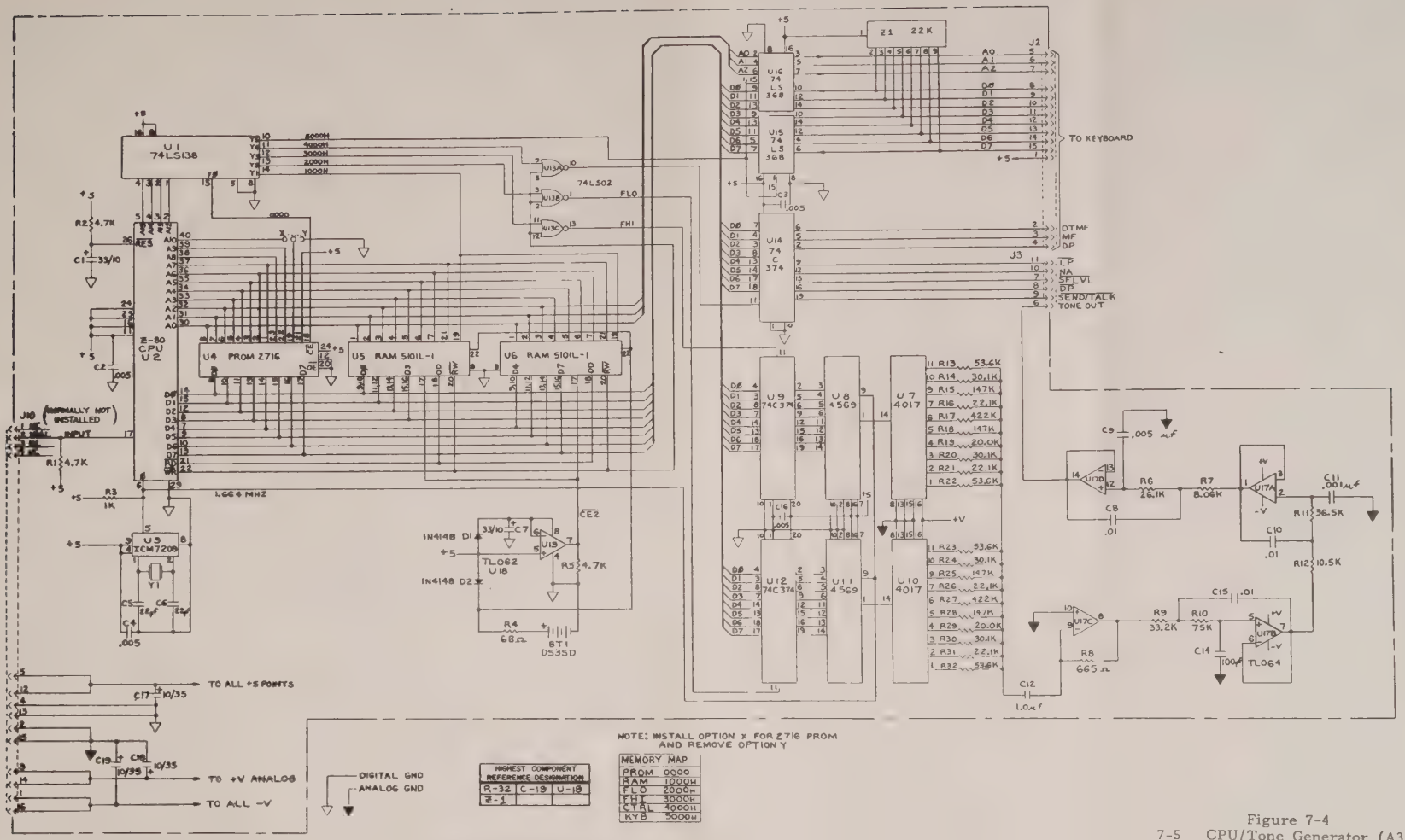


Figure 7-3
CPU/Tone Generator (A3)

200-1458-5 REV B



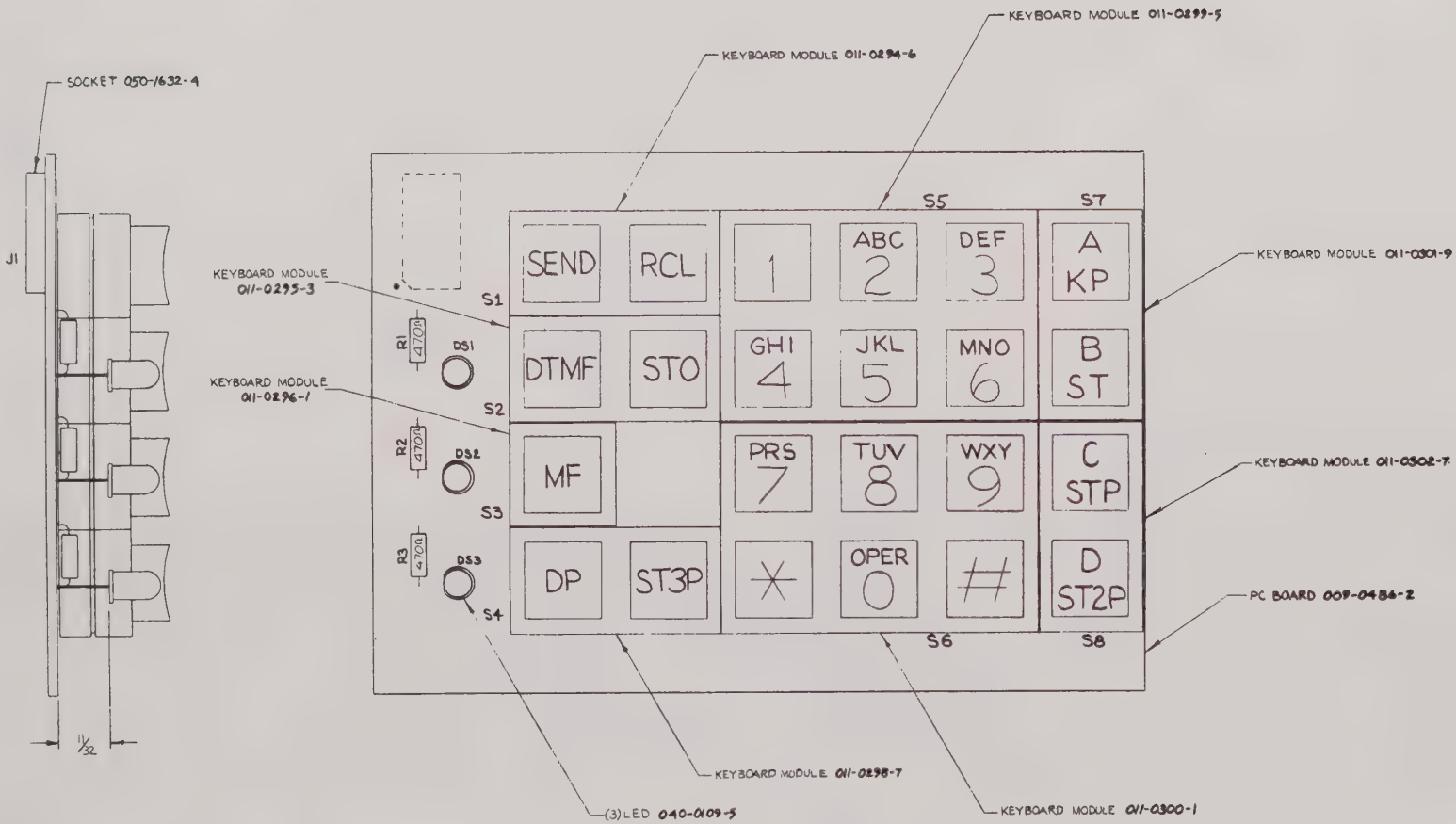
NOTE: INSTALL OPTION X FOR 2716 PROM AND REMOVE OPTION Y

HIGHEST COMPONENT REFERENCE DESIGNATION		
R-32	C-19	U-18
Z-1		

MEMORY MAP	
PROM	0000
RAM	1000H
FLO	2000H
FHI	3000H
CTRL	4000H
KYB	5000H

UNLESS NOTED, RESISTORS 1/4W
3 PLACE VALUES ±1% OTHERS ±5%

Figure 7-4
7-5 CPU/Tone Generator (A3)
500-0801-0 REV A



NOTE: DO NOT DEFLUX OR HAND WASH AFTER SWITCHES ARE SOLDERED.

Figure 7-5
Keyboard (A4)

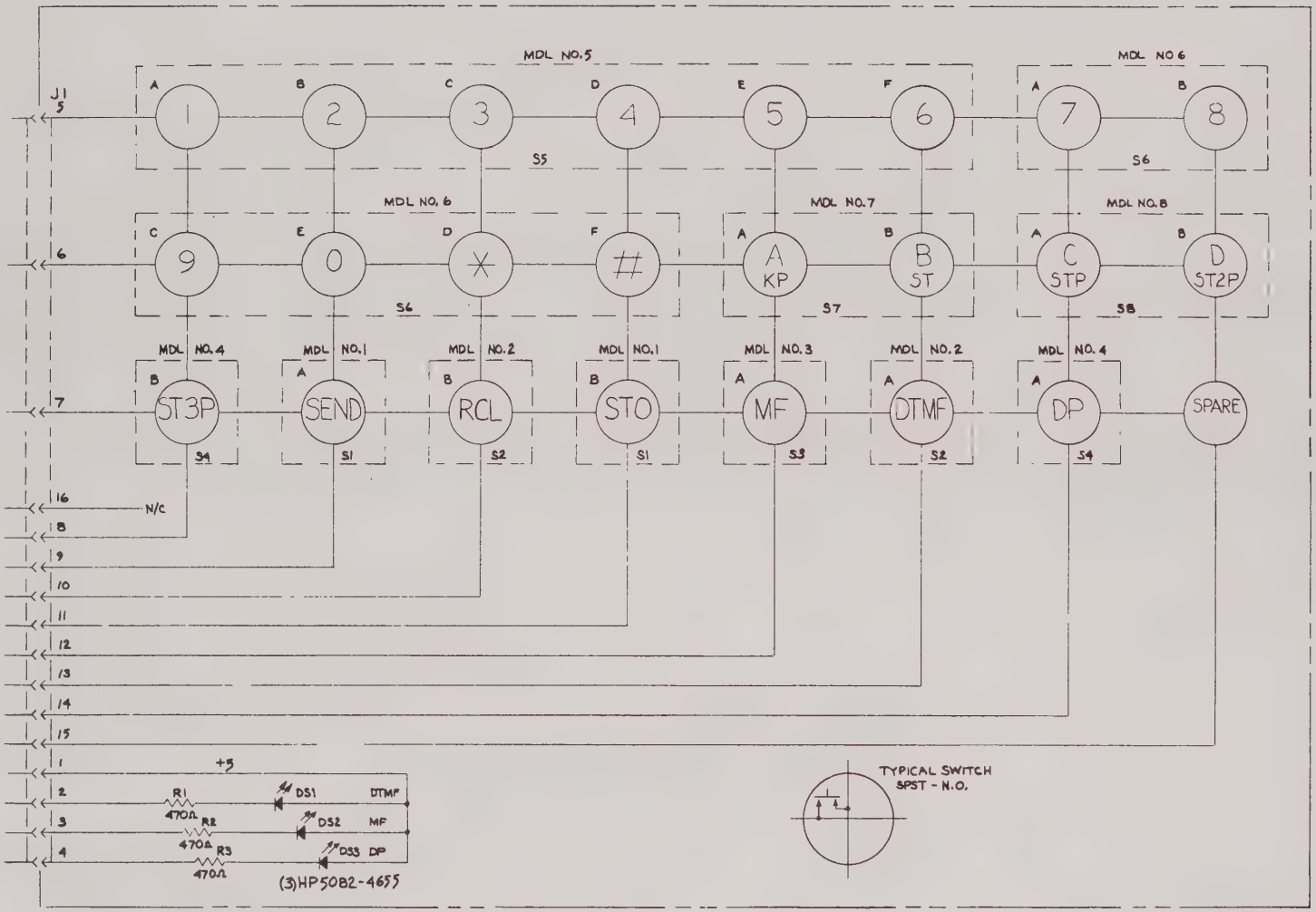


Figure 7-6
Keyboard (A4)

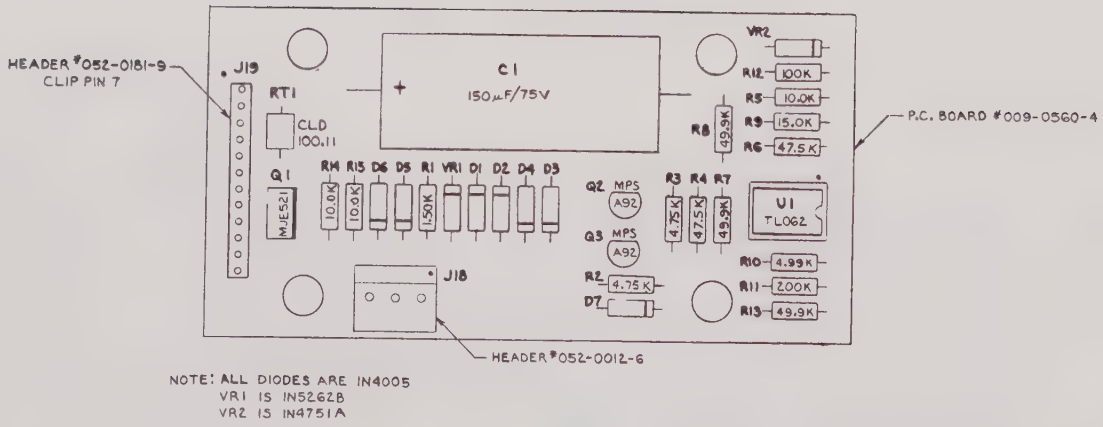


Figure 7-7
-48 V Supply (A6)

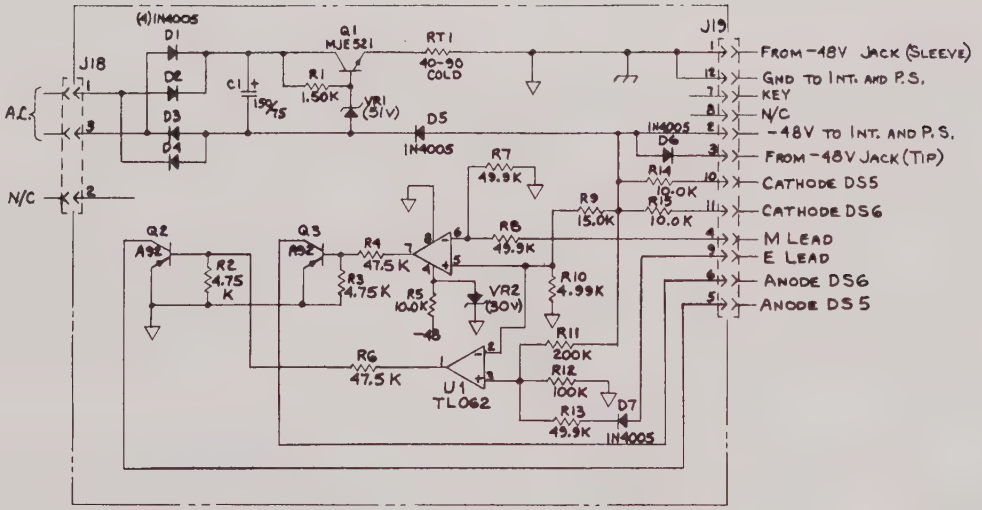


Figure 7-8
-48 V Supply (A6)

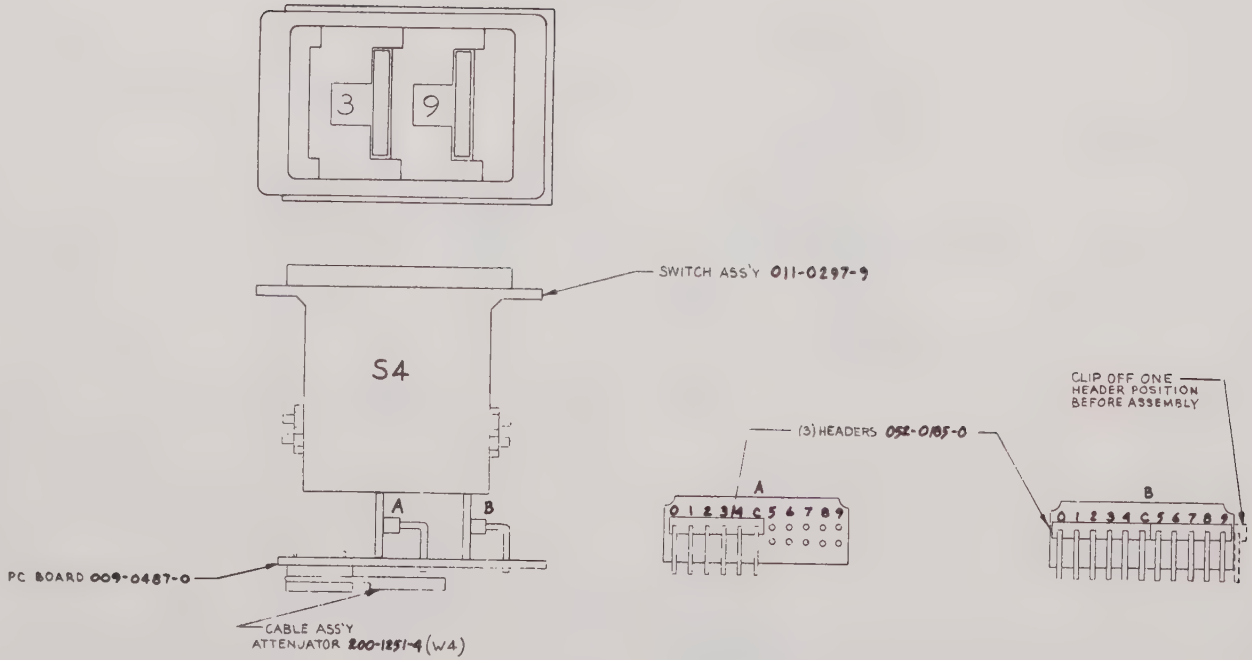
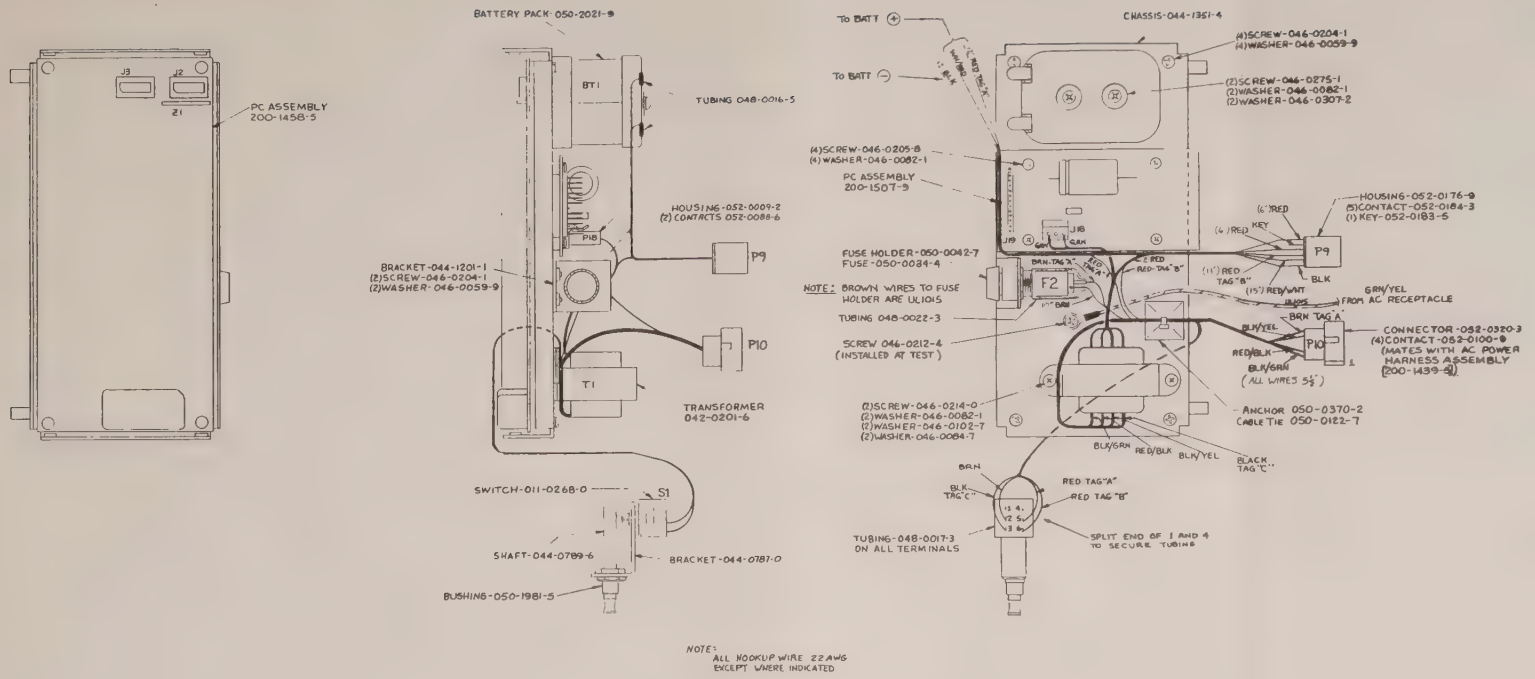


Figure 7-9
Send Level Switch Assembly (A7)



NOTE:
ALL HOOKUP WIRE 22AWG
EXCEPT WHERE INDICATED

Figure 7-10
CPU Chassis Assembly (A5)

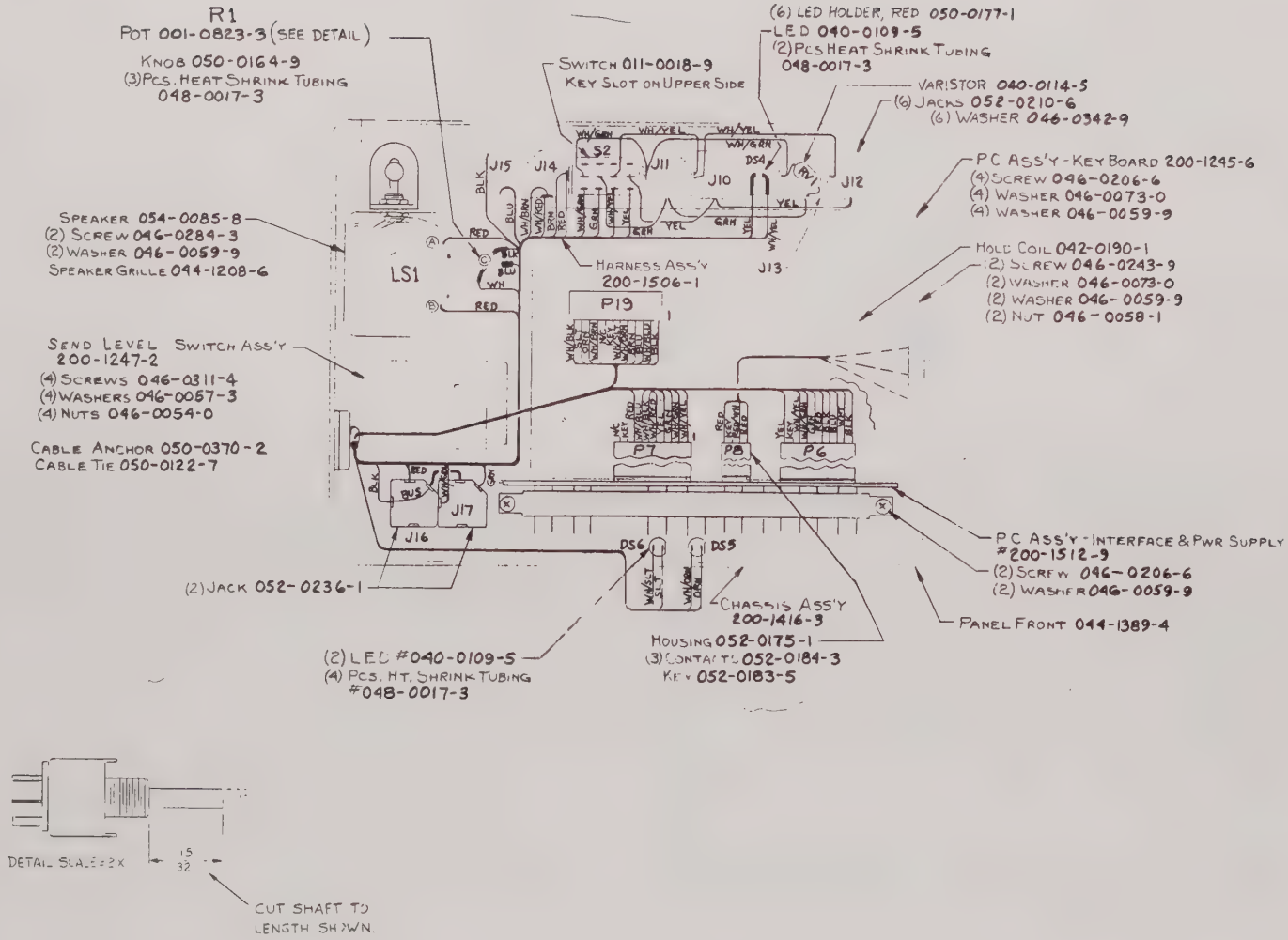


Figure 7-11a
Main Chassis Assembly (A1)

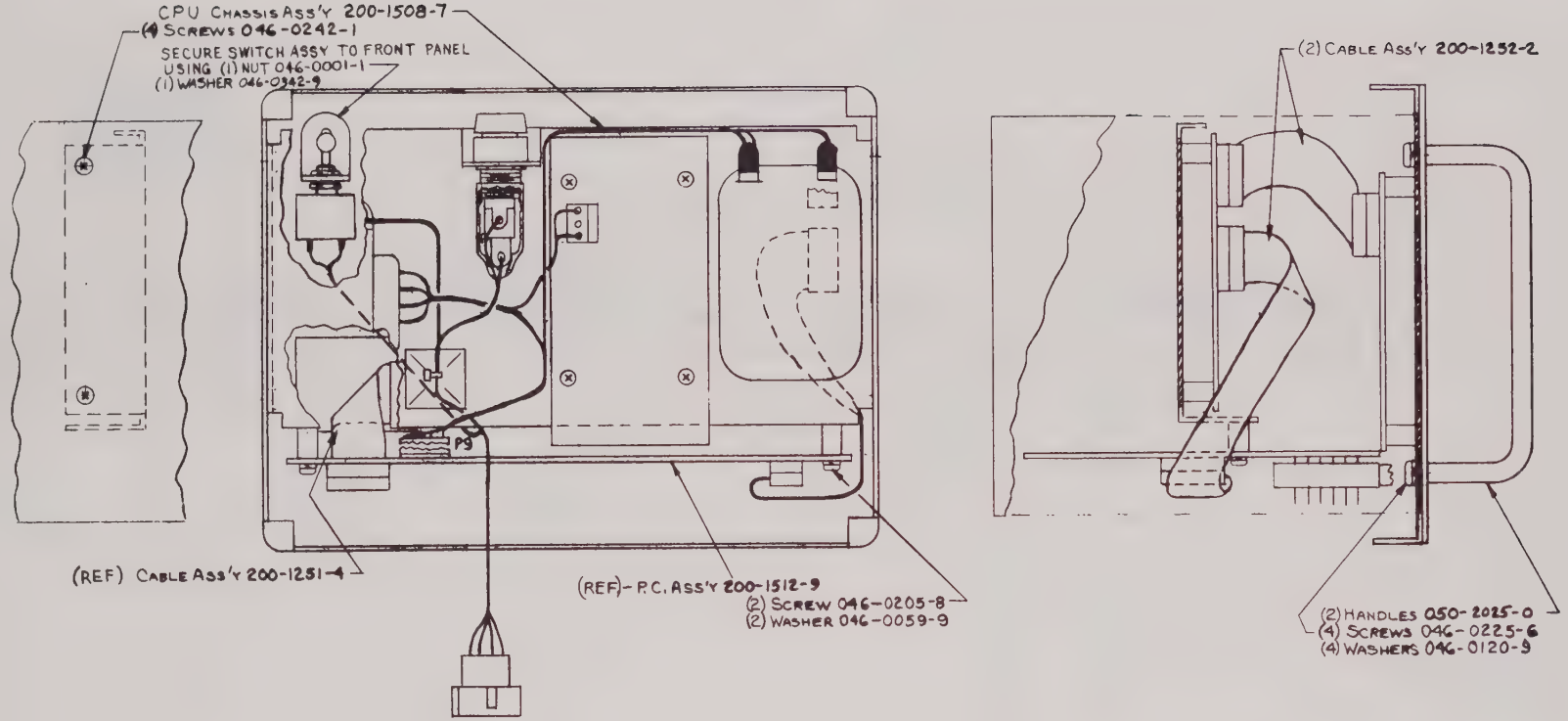
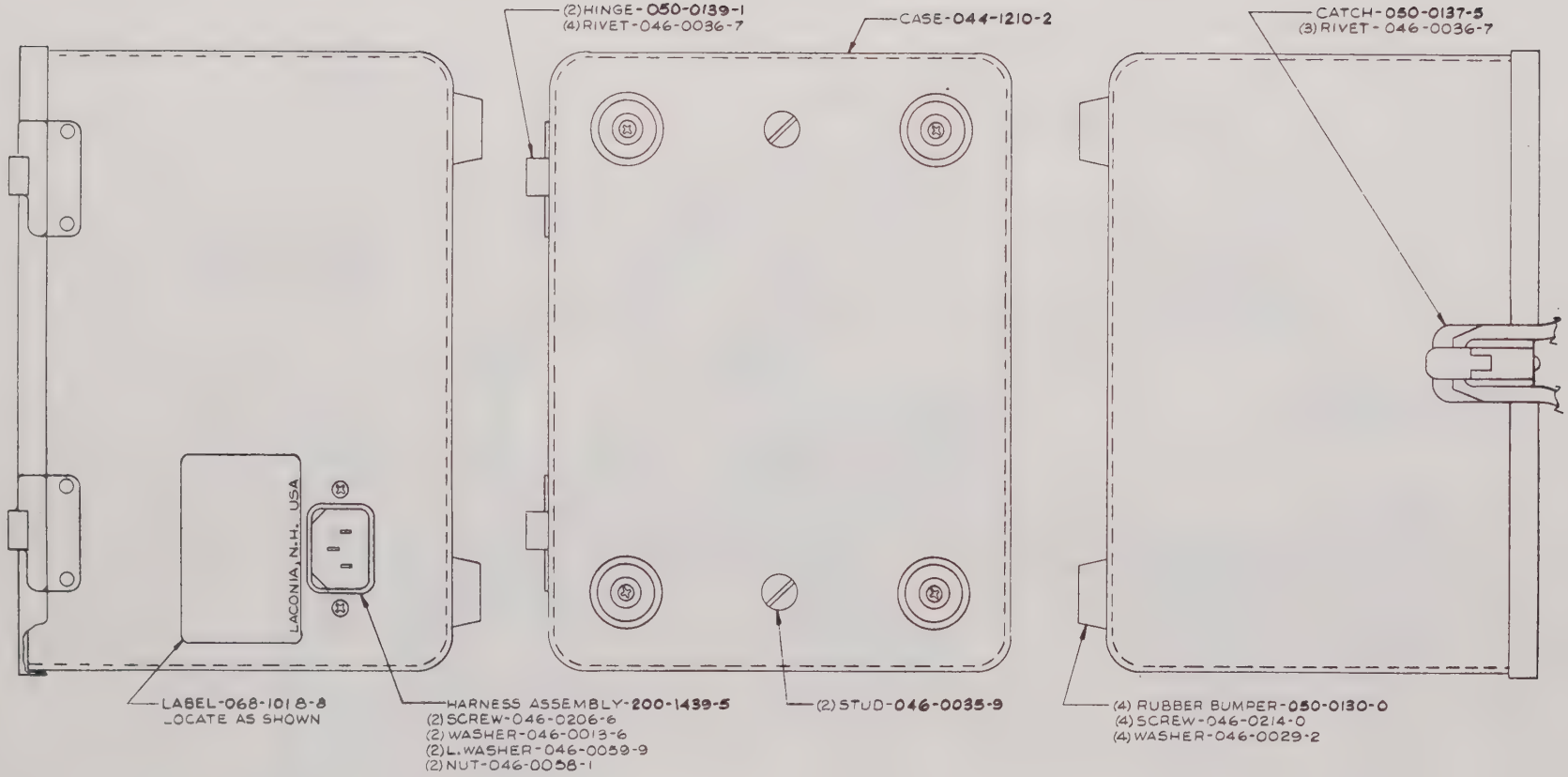
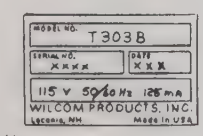


Figure 7-11b
Main Chassis Assembly (A1)





NOTE:
LABEL INFORMATION TO BE MACHINE-PRINTED

Figure 7-12
Case Assembly

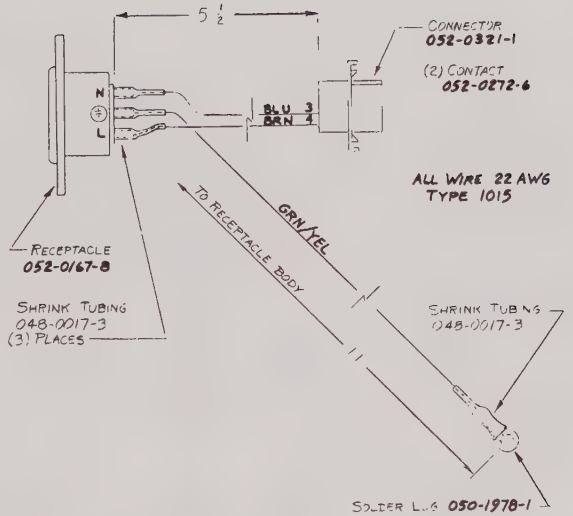


Figure 7-13
AC Power Harness Assembly

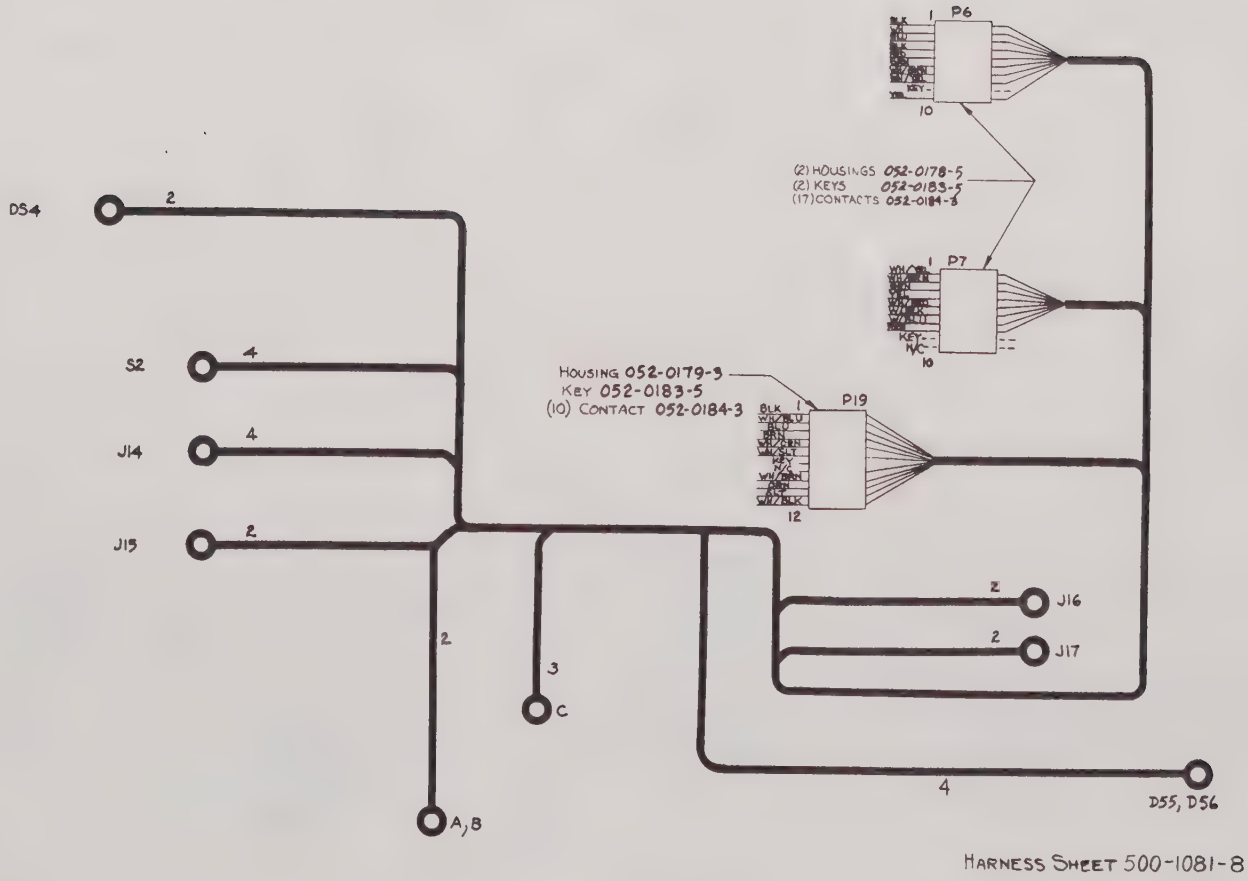


Figure 7-14
Main Harness Assembly (W1)

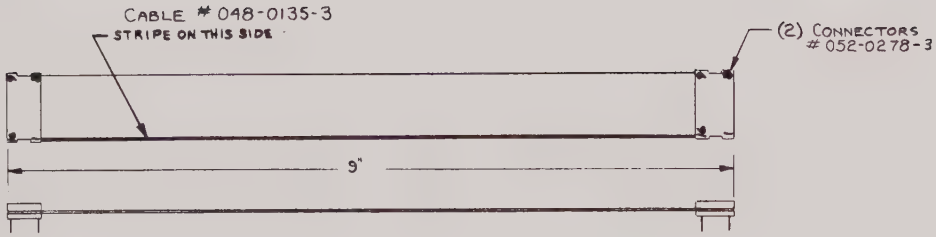


Figure 7-15
Cable Assembly

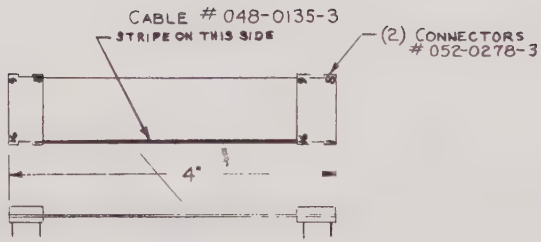


Figure 7-16
Attenuator Cable Assembly (W4)

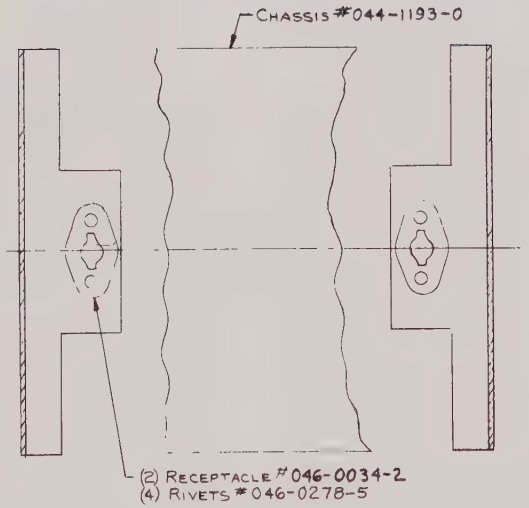


Figure 7-17
Main Chassis Fastener Assembly

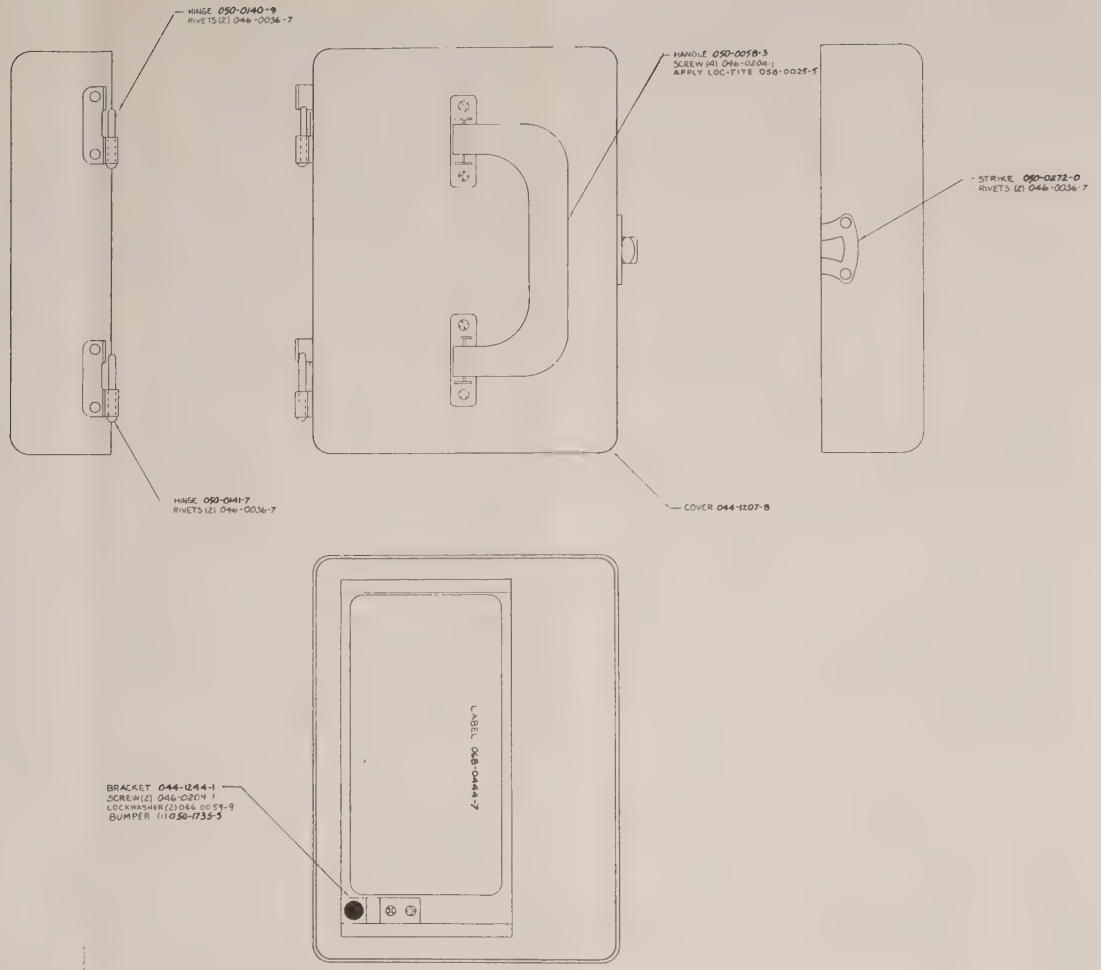


Figure 7-18
Cover Assembly
200-1255-5 REV A

8.0 PARTS LISTS

8.1 General - This section supplies listings of all components used in the Model T303B. The parts lists are identified by an assembly number and "A" reference designator corresponding to the associated assembly number and "A" reference designator on the assembly or schematic drawing. The assembly number, located in the top center of the parts list, must match the assembly drawing number located in the lower right of the drawing. The "Title or Description" of the assembly is located in the upper left corner of each page.

8.1.01 Where reference designators have been used on the assembly and schematic drawings they will also be found in the column labeled "Title or Description/Reference Designation". The reference designator will be located directly below the component description.

8.1.02 The column labeled "ECO NO." (Engineering Change Order Number) located on the right side of the parts list may contain a four-digit ECO number for a line item. Refer to the section on Difference Data before ordering replacement parts to insure the component listed is the correct one for the unit being serviced.

8.1.03 The Wilcom part number for the component listed is followed by the manufacturer's name and component part number. When ordering parts from local suppliers, refer to the column titled "Source Information, Mfr. Name/No., Mfr. Part No.". All components listed with a source of WILCOM must be ordered directly from Wilcom Products, Inc. at the address listed in paragraph 8.2.

8.2 Ordering Information - When ordering parts from Wilcom please use the WILCOM eight-digit part number. There is a twenty-five dollar minimum required for billing purposes. Items costing less must be prepaid. Contact our Customer Service representatives to place an order or for current pricing information. They may be reached at the following address;

PLANTRONICS/Wilcom
Box 508, Daniel Webster Hwy.
Laconia, NH 03247
ATTN: Customer Service/Sales
Phone: (603)524-2622

P A R T S L I S T

TITLE OR DESCRIPTION: T3038 UNIVERSAL SENDER (115V) 03038

PART/DRAWING #: 30303036 | DWG SIZE: N | DWG REV: - | P/L REV: -

PREP DGT 05/05/81 | CHECK DGT 05/07/81 | APRVD DJF 05/07/81

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	IST	WILCOM PART/DWG	DR SZ	DR IC	DR REV	SOURCE INFORMATION: MFR NAME/NO.	MFR PART NO.	ECO NO.
000100	MAIN CHASSIS ASSEMBLY (A1)	1		20015095	C	M	C	WILCOM 60000015	0303-B -	
000200	CASE ASSEMBLY	1		20015068	C	A		WILCOM 60000015	0303-B -	
000300	COVER ASSEMBLY	1		20012555	D	A		WILCOM 60000015	0303- -	
000400	CORD SET, 3 COND (NEW STYLE) BLACK	1		04800074				BELDEN 60101250	17250	

******* END OF PARTS LIST *******

P A R T S L I S T

TITLE OR DESCRIPTION

PC ASSEMBLY, INTERFACE & POWER SUPPLY (A2) 03034

PART/DRAWING # 20015129

DWG SIZE C | DWG REV D | P/L REV F

PREP JMT 04/02/81
CHECK JMT 04/29/81
APRVD DJF 04/29/81

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	IST	WILCOM PART/DWG	IDR	ISZ	IRV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
000150	PC BOARD, INTERFACE & POWER SUPPLY	1	1	00905596	C	A		WILCOM 60000015	0303-B =	
000200	SOLDER MASK FOR 00905596	REF	1	50010867	C	-	1	WILCOM 60000015	0303-B =	11627
000210	RES, STNL FILM: 1%, .25W 6.81 OHM R 19	1	1	00100172				TRW/IRC 60100781	TF07 6.81 OHM	11717
000220	RES, STNL FILM: 1%, .25W 10.0 OHM R 66	1	1	00100206				TRW/IRC 60100781	T055 10.0 OHM	11717
000350	RES, STNL FILM: 1%, .25W 121 OHM R 9	1	1	00108803				TRW/IRC 60100781	T055 121 OHM	
000500	RES, STNL FILM: 1%, .25W 301 OHM R 30,31	2	1	00110007				TRW/IRC 60100781	T055 301 OHM	
000600	RES, STNL FILM: 1%, .25W 412 OHM R 38	1	1	00110171				TRW/IRC 60100781	T055 412 OHM	
000700	RES, STNL FILM: 1%, .25W 453 OHM R 39	1	1	00108845				TRW/IRC 60100781	T055 453 OHM	
000750	RES, STNL FILM: 1%, .25W 475 OHM R 11,15	2	1	00108894				TRW/IRC 60100781	T055 475 OHM	11717
000800	RES, STNL FILM: 1%, .25W 511 OHM R 40	1	1	00108951				TRW/IRC 60100781	T055 511 OHM	
000900	RES, STNL FILM: 1%, .25W 604 OHM R 41	1	1	00109066				TRW/IRC 60100781	T055 604 OHM	
001000	RES, STNL FILM: 1%, .25W 665 OHM R 42	1	1	00110049				TRW/IRC 60100781	T055 665 OHM	
001100	RES, STNL FILM: 1%, .25W 750 OHM R 43	1	1	00110114				TRW/IRC 60100781	T055 750 OHM	
001150	RES, STNL FILM: 1%, .25W 845 OHM R 23	1	1	00110197				TRW/IRC 60100781	T055 845 OHM	
001200	RES, STNL FILM: 1%, .25W 866 OHM R 44	1	1	00101253				TRW/IRC 60100781	T055 866 OHM	

P A R T S L I S T

TITLE OR DESCRIPTION	PART/DRAWING #	DWG SIZE	DWG REV	P/L REV	
PC ASSEMBLY, INTERFACE & POWER SUPPLY (A2) 0303H	20015129	C	D	F	PREP JMT 04/02/81 CHECK JMT 04/29/81 APRVD DJF 04/29/81

LINE NUMBER	TITLE OR DESCRIPTION REFERENCE DESIGNATION		QUANTITY	WILCOM PART/DWG	ORIDR SZ	ORIDR REV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.		ECO NO.
001300	RES, STBL FILM: 1%, .25W R 45	976 OHM	1	00101295			TRW/IRC 60100781	T055	976 OHM	
001400	RES, STBL FILM: 1%, .25W R 14,21,55,58	1.00 K	4	00109157			TRW/IRC 60100781	T055	1.00 K	11717
001500	RES, STBL FILM: 1%, .25W R 46	1.07 K	1	00109231			TRW/IRC 60100781	T055	1.07 K	
001515	RES, STBL FILM: 1%, .25W R 13	2.21 K	1	00109223			TRW/IRC 60100781	T055	2.21 K	11717
001525	RES, STBL FILM: 1%, .25W R 22	2.43 K	1	00109272			TRW/IRC 60100781	T055	2.43 K	
001600	RES, STBL FILM: 1%, .25W R 47	3.16 K	1	00110338			TRW/IRC 60100781	T055	3.16 K	
001700	RES, STBL FILM: 1%, .25W R 37	3.48 K	1	00109314			TRW/IRC 60100781	T055	3.48 K	
001750	RES, STBL FILM: 1%, .25W R 54	4.75 K	1	00110544			TRW/IRC 60100781	T055	4.75 K	11717
001800	RES, STBL FILM: 1%, .25W R 48	6.81 K	1	00110726			TRW/IRC 60100781	T055	6.81 K	
001825	RES, STBL FILM: 1%, .25W R 28,29,34,63,65	10.0 K	5	00102061			TRW/IRC 60100781	T055	10.0 K	11717
001830	RES, STBL FILM: 1%, .25W R 18	12.1 K	1	00110577			TRW/IRC 60100781	T055	12.1 K	11717
001850	RES, STBL FILM: 1%, .25W R 24	14.7 K	1	00102160			TRW/IRC 60100781	T055	14.7 K	
001875	RES, STBL FILM: 1%, .25W R 2	16.5 K	1	00110734			TRW/IRC 60100781	T055	16.5 K	
001880	RES, STBL FILM: 1%, .25W R 4,7	20.0 K	2	00109603			TRW/IRC 60100781	T055	20.0 K	11717
001900	RES, STBL FILM: 1%, .25W R 49	21.5 K	1	00109629			TRW/IRC 60100781	T055	21.5 K	

P A R T S L I S T

PC ASSEMBLY, INTERFACE & POWER SUPPLY (A2) 03036 — PART/DRAWING # 20015129 — DWG SIZE C — DWG REV D — P/L REV F

PREP JMT 04/02/81 — CHECK JMT 04/29/81 — APRVD DJF 04/29/81

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUANT	WILCOM PART/DWG	ORIOR SIZE	ORIOR REV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
001925	RES, STBL FILM: 1%, .25W 22.1 K R 14,33,36,44	4	00109652			TRW/IRC 60100781	T055 22.1 K	11717
001950	RES, STBL FILM: 1%, .25W 28.7 K R 61	1	00110841			TRW/IRC 60100781	T055 28.7 K	
001975	RES, STBL FILM: 1%, .25W 47.5 K R 17	1	00102609			TRW/IRC 60100781	T055 47.5 K	11717
002000	RES, STBL FILM: 1%, .25W 49.9 K R 3,5,6,8,26,67,68	7	00102624			TRW/IRC 60100781	T055 49.9 K	11717
002100	RES, STBL FILM: 1%, .25W 68.1 K R 50	1	00110981			TRW/IRC 60100781	T055 68.1 K	
002120	RES, STBL FILM: 1%, .25W 274 K R 20,59,62	3	00111336			TRW/IRC 60100781	T055 274 K	11717
002170	RES, STBL FILM: 1%, .25W 475 K R 12,60	2	00111484			TRW/IRC 60100781	T055 475 K	11717
002200	RES, STBL FILM: 1%, 4W 100 OHM R 10,32	2	00107334			TRW/IRC 60100781	GS3 100 OHM	
002225	RES, STBL FILM: 1%, 4W 301 OHM R 51,52	2	00114876			TRW/IRC 60100781	GS3 301 OHM	
003500	RES, WIREWOUND: 10%, 5W 2 OHM R 1	1	00107540			TRW/IRC 60100781	PW5-2-10%	11468
003700	POT, TRIM: 3/8 SQ E/A, 19T 20 K R 25	1	00114181			NOTE 60103975	NOT FOR NEW DESIGNS	
003800	CAP,TANT ELEC: 10%,35V 1.0 UF C 20	1	00301978			ITT SEMI 60101029	TAP-A1.0K35	
003900	CAP, TNT ELEC:DIP RAD 10% 35V 10 UF C 1,13-18	7	00301937			ITT SEMI 60101029	TAP-A10K35	
003950	CAP, TNT ELEC:DIP RAD 20% 10V 33 UF C 3,4	2	00301952			ITT SEMI 60101029	TAP-A33M10	
004000	CAP, RADL MONO: 20% 50V Z5U .1 UF C 5-8	4	00302190			SPRAGUE 60100690	1C25Z5U104M050B	11717

P A R T S L I S T

TITLE OR DESCRIPTION: PC ASSEMBLY, INTERFACE & POWER SUPPLY (A2) 03038

PART/DRAWING #: 20015129 | DWG SIZE: C | DWG REV: D | P/L REV: F

PREP JMT 08/02/81 | CHECK JMT 08/29/81 | APRVD DJF 08/29/81

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	DRIOR SZ	DRIOR RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
004050	CAP, ROL MONO: 10% 50V X7R .33 UF C 19	11		00315069			MURATA ER 60100310	8131-050-X7R0-334K	1717
004100	CAP, ROL MONO:20% 50V Z5U 1.0 UF C 12	11		00302182			SPRAGUE 60100690	2C37Z5U105M050B	
004300	CAP, DISC: 10%, 500V X5F 47 PF C 9	11		00300160			TUSONIX 60107364	831-000-X5F0-470K	
004400	CAP, ALUM ELEC: ROL, 16V 100 UF C 10,11	21		00301473			SPRAGUE 60100690	502D107G016CC1C	
004500	TRANSISTOR, NPN POWER Q 1	11		00500249			MOTO SEMI 60100872	MJE340	
004550	TRANSISTOR, NPN HIGH VOLTAGE Q 7	11		00500082			MOTO SEMI 60100872	MPSA42	
004600	TRANSISTOR, NPN AMPLIFIER Q 2,3	21		00500868			MOTO SEMI 60100872	MPS6521	
004620	TRANSISTOR, PNP POWER Q 4	11		00500322			MOTO SEMI 60100872	MJE371	
004630	TRANSISTOR, N-CHAN POWER FET Q 5	11		00501502			SILICONIX 60100971	VN10KM	
004640	TRANSISTOR, NPN HIGH CURRENT Q 8	11		00501535			RCA SEMI 60101100	2N6101	
004700	IC, LINEAR, POS 5-VOLT, TO-220 U 1	11		00706291			NAT'L SEMI 60100963	LM340T-5	
004800	IC, LINEAR, VOLT COMP, 8-PIN DIP U 9	11		00700096			MOTO SEMI 60100872	LM311P1	
004900	IC,LIN,LO PWR, JFET-INPUT,OP AMP U 4,7	21		00705772			TI SEMI 60100898	TL064ACN	
005000	IC, LINEAR, 1/2W AUDIO AMPLIFIER U 5	11		00706010			MOTO SEMI 60100472	MC1306P	
005100	IC, LINEAR, LOW DRIFT 2.5V REFERENCE U 2	11		00705764			ANALOG DEV 60103363	AD580JH	

P A R T S L I S T

TITLE OR DESCRIPTION

* PC ASSEMBLY, INTERFACE & POWER SUPPLY (A2) 03038 *

PART/DRAWING # 20015129

PREP JMT 04/02/81
CHECK JMT 04/29/81
APRVD DJF 04/29/81

DWG SIZE C
DWG REV D
P/L REV F

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	DRIORI SZ	DRIORI RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
005200	IC, OPTOELECT, LED/NPN-XSTR ISO U R	1	1	00700518			GE SEMI 60103405	H1101	
005300	IC, CMOS, MONO VOLTAGE CONVERTER U 3	1	1	00706457			INTERSIL 60101003	ICL7660CPA	
005400	IC, CMOS, QUAD ANALOG TRANS GATE U 6	1	1	00700039			SILICONIX 60100971	DG201CJ	
005500	VARISTOR, SIGNAL: 1 MA @ .58V MIN RV 1	1	1	04000568			VECO 60101425	SV100A	
005550	VARISTOR, PROTEC, MAX DC VOLT, 26V RV 2	1	1	04000519			GE SEMI 60103405	V33ZA1	
005600	DIODE, RECTIFIER, 1A D 1-11	11	1	04000824			MOTO SEMI 60100872	1N4005	
005700	DIODE, ZENER, 5.1V +/-5% VR 1-4	4	1	04000097			ITT SEMI 60101029	1N751A	
005910	FUSE, PC MOUNT 2 A F 1	1	1	05003108			LITTLEFUSE 60101565	275002	
005930	HEADER, STR POST, .100 OC 6 POS J 9	1	1	05200332			AMP 60100062	A7348-6	
005940	HDR, STR POST: .100 OC 4 POS J 8	1	1	05201652			AMP 60100062	A7348-4	
005941	HEADER, STR POST, .100 OC 10 POS J 6,7	2	1	05200316			AMP 60100062	1-87348-0	
005942	SCKT,IC,LO PROF: GOLD 8 PIN U 3,5,9	3	1	05016274			T I METAL 60106093	C93-08-02	11614
005945	SCKT,IC,LO PROF: GOLD 14 PIN	2	1	05016290			T I METAL 60106093	C93-14-02	
005950	SCKT,IC,LO PROF: GOLD 16 PIN J 4,5,UA	3	1	05016324			T I METAL 60106093	C93-16-02	11614
005955	COMPONENT MOUNT, SMALL 4 PIN, TO-18	1	1	05017322			BIVAR 60102092	104-060	11717

P A R T S L I S T

TITLE OR DESCRIPTION: PC ASSEMBLY, INTERFACE & POWER SUPPLY (A2) 03034

PART/DRAWING #: 20015129 | DWG SIZE: C | DWG REV: D | P/L REV: F

PREP JMT 04/02/81
CHECK JMT 04/29/81
APRVD DJF 04/29/81

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	DR SZ	DR RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
0059601	SWITCH ASSEMBLY, PUSH BUTTON S 3	1	1	01103035	A	-	WILCOM 60000015	0303- -	11468
0060001	MS, PHIL, PAN HD 4-40 X .250	1	1	04602041	R	-	WILCOM 60000015	S P 4-40X.250	
0061001	LOCKWASHER, HEL SPRING #4	1	1	04600599	R	-	WILCOM 60000015	W H 4	
0062001	NUT, HEX, 1/4 AF 4-40	1	1	04600581	R	-	WILCOM 60000015	N H 4-40	
0062501	WIRE, HOOKUP 22AWG (SOLID) AMT	A/R		04801106			BELDEN 60101250	8340A AMT	11614
0063001	SCHEMATIC, INTERFACE & POWER SUPPLY	REF		50010842	D	E	WILCOM 60000015	0303-R -	

******* END OF PARTS LIST *******

P A R T S L I S T

TITLE OR DESCRIPTION	PART/DRAWING #	DWG SIZE	DWG REV	P/L REV	
PC ASSEMBLY, CPU/TONE GENERATOR (A3) 0303	20014585	C	A	-	PREP DGT 11/21/80 CHECK DGT 12/10/80 APRVD DJF 12/12/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	NILCOM PART/DWG	DR SZ	DR RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
0001001	PC BOARD, CPU/TONE GENERATOR	1	1	00904884	C	A	NILCOM 60000015	0303-	
0002001	SOLDER MASK FOR 00904884	REF		50007681	C	-	NILCOM 60000015	0303- -	
0003001	RES, STBL FILM: 1%, .25W 665 OHM R 5	1	1	00110049			TRW/IRC 60100781	T055 665 OHM	
0004001	RES, STBL FILM: 1%, .25W 8.06 K R 7	1	1	00109330			TRW/IRC 60100781	T055 8.06 K	
0005001	RES, STBL FILM: 1%, .25W 10.5 K R 12	1	1	00109504			TRW/IRC 60100781	T055 10.5 K	
0006001	RES, STBL FILM: 1%, .25W 20.0 K R 19,29	1	2	00109603			TRW/IRC 60100781	T055 20.0 K	
0007001	RES, STBL FILM: 1%, .25W 22.1 K R 16,21,26,31	1	4	00109652			TRW/IRC 60100781	T055 22.1 K	
0008001	RES, STBL FILM: 1%, .25W 26.1 K R 4	1	1	00110809			TRW/IRC 60100781	T055 26.1 K	
0009001	RES, STBL FILM: 1%, .25W 30.1 K R 14,20,24,30	1	4	00110866			TRW/IRC 60100781	T055 30.1 K	
0010001	RES, STBL FILM: 1%, .25W 33.2 K R 9	1	1	00110957			TRW/IRC 60100781	T055 33.2 K	
0011001	RES, STBL FILM: 1%, .25W 36.5 K R 11	1	1	00109546			TRW/IRC 60100781	T055 36.5 K	
0012001	RES, STBL FILM: 1%, .25W 53.6 K R 13,22,23,32	1	4	00102657			TRW/IRC 60100781	T055 53.6 K	
0013001	RES, STBL FILM: 1%, .25W 75.0 K R 10	1	1	00111096			TRW/IRC 60100781	T055 75.0 K	
0014001	RES, STBL FILM: 1%, .25W 147 K R 15,18,25,28	1	4	00111203			TRW/IRC 60100781	T055 147 K	
0015001	RES, STBL FILM: 1%, .25W 422 K R 17,27	1	2	00111450			TRW/IRC 60100781	T055 422 K	

P A R T S L I S T

TITLE OR DESCRIPTION: PC ASSEMBLY, CPU/TONE GENERATOR (A3) 0303

PART/DRAWING #: 20014535 | DWG SIZE: C | DWG REV: A | P/L REV: - | PREP DGT 11/21/80 | CHECK DGT 12/10/80 | APRVD DJF 12/12/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	DR	SZ	REV	SOURCE INFORMATION: MFR NAME/NO.	MFR PART NO.	ECO NO.
0016001	RES, STBL FILM: 1%, .25W 68.1 OHM R 4	11	1	00109850	1	1	1	TRW/IRC 60100781	T055 68.1 OHM	
0017001	RES, STBL FILM: 1%, .25W 1.00 K R 3	11	1	00109157	1	1	1	TRW/IRC 60100781	T055 1.00 K	
0018001	RES, STBL FILM: 1%, .25W 4.75 K R 1,2,5	31	1	00110544	1	1	1	TRW/IRC 60100781	T055 4.75 K	
0019001	CAP, DISC: 5%, 500V N750 22 PF C 5,6	21	1	00300111	1	1	1	TUSONIX 60107364	831-000-U2J0-220J	
0020001	CAP, AXL PE: 2% 100V 1000 PF C 11	11	1	00315093	1	1	1	F-DYNE 60100328	PE11-.001-100-2	
0021001	CAP, AXL PPA: 1% 400V .005 UF C 9	11	1	00304881	1	1	1	F-DYNE 60100328	PPA-11-.005-400-	
0022001	CAP, DISC: +80-20%, 100V 5000 PF C 2-4,16	41	1	00300418	1	1	1	TUSONIX 60107364	835-000-X5V0-502K	
0023001	CAP, RDL MONO:20% 50V Z5U 1.0 UF C 12	11	1	00302182	1	1	1	SPRAGUE 60100690	2C37Z5U105M050B	
0024001	CAP, AXL PE: 2% 100V .01 UF C 8,10,15	31	1	00302588	1	1	1	F-DYNE 60100328	PE11-.01-100-2	
0025001	CAP, MICA DM15: 1% 500V 100 PF C 14	11	1	00313544	1	1	1	CDE 60101615	CD15FD101F03	
0026001	CAP, TNT ELEC:DIP RAD 20% 10V 33 UF C 1,7	21	1	00301952	1	1	1	ITT SEMI 60101029	TAP-A33M10	
0027001	CAP, TNT ELEC:DIP RAD 10% 35V 10 UF C 17-19	31	1	00301937	1	1	1	ITT SEMI 60101029	TAP-A10K35	
0028001	DIODE, SIGNAL D 1,2	21	1	04000816	1	1	1	GE SEMI 60103405	1N4148	
0029001	IC, UPROC, 8 BIT, NMOS U 2	11	1	00705430	1	1	1	ZILOG 60104742	Z80-CPU (PLASTIC)	
0030001	IC, MEM,256X4 STATIC CMOS RAM,450NS U 5,6	21	1	00705848	1	1	1	INTEL 60100997	P5101L-1	

P A R T S L I S T

TITLE OR DESCRIPTION: PC ASSEMBLY, CPU/TONE GENERATOR (A3) 0303

PART/DRAWING #: 20014585 | DWG SIZE: C | DWG REV: A | P/L REV: - | PREP DGT 11/21/80 | CHECK DGT 12/10/80 | APRVD DJF 12/12/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	DR SZ	OP RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
003100	IC, PROGRAMED PROM, U8, 0000-07FF U 4	1	1	00706473	A	-	WILCOM 60000015	0303- -	
003200	NOTE: MADE BY PROGRAMMING FOLLOWING IC			50009992	Y	-	WILCOM 60000015	0000-00-001	
003300	IC,UPROC,2048X8 MOS EPROM(450NS,2716 TYP)	REF		00706028			HITACHI 60104932	HN462716	
003400	T303 OBJECT PROGRAM	REF		50010032	A	-	WILCOM 60000015	0303- -	
003500	T303 SOURCE PROGRAM	REF		50010024	A	-	WILCOM 60000015	0303- -	
003600	IC, CMOS, CRYSTAL CONT FREQ GEN. U 3	1	1	00704619			INTERSIL 60101003	ICM7209IPA	
003700	IC, LSTTL, TRI STATE HEX INV. BUF U 15,16	2	1	00706051			MOTO SEMI 60100872	SN74LS368AN	
003800	IC, CMOS, OCTAL D-TYPE FLIP-FLOP U 9,12,14	3	1	00706044			NAT'L SEMI 60100963	MM74C374N	
003900	IC, LIN,DUAL LO PWR BI-FET OP AMP U 18	1	1	00702050			TI SEMI 60100898	TL062CP	
004000	IC, LSTTL, 1 OF 8 DECODER U 1	1	1	00701094			NAT'L SEMI 60100963	DM74LS138N	
004100	IC, CMOS, QUAD 2 INPUT NOR U 13	1	1	00706036			NAT'L SEMI 60100963	MM74C02N	
004200	IC, CMOS, DUAL PROG. BCD/BI CNTR U 8,11	2	1	00705087			MOTO SEMI 60100872	MC145698CP	
004300	IC, CMOS, DECADE COUNTER U 7,10	2	1	00701201			RCA SEMI 60101144	CD40178E	
004400	IC,LIN,LO PWR, JFET-INPUT,OP AMP U 17	1	1	00705772			TI SEMI 60100898	TL064ACN	
004500	RESISTOR NET, 10 PIN SIP, 9 BUSSED 2% 2.2 K Z 1		1	05400452			BOURNS 60101649	4310R-101-222	

P A R T S L I S T

TITLE OR DESCRIPTION

PC ASSEMBLY, CPU/TONE GENERATOR (A3) 0303

PART/DRAWING # 20014585 | DWG SIZE C | DWG REV A | P/L REV - | PREP DGT 11/21/80 | CHECK DGT 12/10/80 | APRVD DJF 12/12/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	DR SIZE	DR REV	SOURCE INFORMATION: MFR NAME/NO.	MFR PART NO.	ECO NO.
0046001	BATTERY, NIC-CAD: 3.6 V, 45 MAH BT 1	1	1	05003090		1	GE BATT 60103827	D93SD	
0047001	CRYSTAL 1.664 MHZ Y 1	1	1	05000833	A	-	WILCOM 60000015	0303- -	
0048001	SCKT,IC,LO PROF: GOLD 40 PIN	1	1	05016365		1	T I METAL 60106093	C93-40-02	
0049001	SCKT,IC,LO PROF: GOLD 16 PIN	4	1	05016324		1	T I METAL 60106093	C93-16-02	
0050001	SOCKET, IC, LO PROF: GOLD 22 PIN	2	1	05003092		1	T I METAL 60106093	C93-22-02	
0051001	SCKT,IC,LO PROF: GOLD 24 PIN	1	1	05016407		1	T I METAL 60106093	C93-24-02	
0052001	BUS WIRE, 22AWG	A/R	1	04A00694		1	BELDEN 60101250	8021	
0053001	COMP MT: VERT (1/4W RES) 4 POS	4	1	05020110		1	ROBISON 60100825	RC-CS250312-4A	
0054001	COMP MT: VERT (1/4W RES) 2 POS	2	1	05020094		1	ROBISON 60100825	RC-CS250312-2A	
0055001	TUBING, NON-SHRINK, TFLN 22AWG CLR	A/R	1	04A00777		1	ALPHA 60101284	TFT-200-22 NATURAL	
0056001	STDOFF,SWAGE: 1/4 RND,3/8 L 4-40	4	1	05003728		1	AMATOM 60100039	9535B-A-0440-0	
0057001	SCHEMATIC, CPU/TONE GENERATOR	REF	1	S0008010	D	A	WILCOM 60000015	0303- -	

******* END OF PARTS LIST *******

P A R T S L I S T

TITLE OR DESCRIPTION

PC ASSEMBLY, KEYBOARD (A4) 0303

PART/DRAWING # 20012456 | DWG SIZE C | DWG REV B | P/L REV - | PREP SPT 02/12/80 | CHECK SPT 04/25/80 | APRVD DJF 04/29/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	DR SZ	DR RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
000100	PC BOARD, KEYBOARD	1		00904862	C	A	WILCOM 60000015	0303-	
000200	SOLDER MASK FOR 00904862	REF		50007590	C	-	WILCOM 60000015	0303- -	
000300	RES, STBL FILM: 1%, .25W 475 OHM R 1-3	3		00108894			TRW/IRC 60100781	T055 475 OHM	
000400	LED, RED DIF, HI INTEN T 1-3/4 CYL DS 1-3	3		04001095			H.P. 60100393	5082 4655	
000500	KEYBOARD MODULE S 1	1		01102946	B	-	WILCOM 60000015	0303- -	
000600	KEYBOARD MODULE S 2	1		01102953	B	-	WILCOM 60000015	0303	
000700	KEYBOARD MODULE S 3	1		01102961	B	-	WILCOM 60000015	0303- -	
000800	KEYBOARD MODULE S 4	1		01102987	B	-	WILCOM 60000015	0303- -	
000900	KEYBOARD MODULE S 5	1		01102995	B	-	WILCOM 60000015	0303- -	
001000	KEYBOARD MODULE S 6	1		01103001	B	-	WILCOM 60000015	0303- -	
001100	KEYBOARD MODULE S 7	1		01103019	B	-	WILCOM 60000015	0303- -	
001200	KEYBOARD MODULE S A	1		01103027	B	-	WILCOM 60000015	0303- -	
001300	SCKT,IC,LO PROF: GOLD 16 PIN	1		05016324			T I METAL 60106093	C93-16-02	
001500	SCHEMATIC, KEYBOARD	REF		50008069	C	B	WILCOM 60000015	0303- -	

******* END OF PARTS LIST *******

P A R T S L I S T

TITLE OR DESCRIPTION

PC ASSEMBLY, -48V SUPPLY (A6) 03038

PART/DRAWING # 20015079 | DAG SIZE B | DAG REV C | P/L REV A

PREP JMT 03/24/81
CHECK JMT 04/29/81
APRVD DJF 04/29/81

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUANTITY	WILCOM PART/DWG	DRI SZ	DRI RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
0001001	PC BOARD, -48V SUPPLY	1	00905604	IBM	-	WILCOM 60000015	0303-B -	
0002001	SOLDER MASK FOR 00905604	REF	50010834	IB	-	WILCOM 60000015	0303-B -	
0003001	RES, STBL FILM: 1%, .25W 1.50 K R 1	1	00110346			TRW/IRC 60100781	T055 1.50 K	
0003501	RES, STBL FILM: 1%, .25W 4.75 K R 2,3	2	00110544			TRW/IRC 60100781	T055 4.75 K	11663
0004001	RES, STBL FILM: 1%, .25W 4.99 K R 10	1	00101881			TRW/IRC 60100781	T055 4.99 K	
0004501	RES, STBL FILM: 1%, .25W 10.0 K R 5,14,15	3	00102061			TRW/IRC 60100781	T055 10.0 K	11663
0005001	RES, STBL FILM: 1%, .25W 15.0 K R 9	1	00110676			TRW/IRC 60100781	T055 15.0 K	
0005501	RES, STBL FILM: 1%, .25W 47.5 K R 4,6	2	00102608			TRW/IRC 60100781	T055 47.5 K	11663
0006001	RES, STBL FILM: 1%, .25W 49.9 K R 7,8,13	3	00102624			TRW/IRC 60100781	T055 49.9 K	
0007001	RES, STBL FILM: 1%, .25W 100 K R 12	1	00111153			TRW/IRC 60100781	T055 100 K	
0008001	RES, STBL FILM: 1%, .25W 200 K R 11	1	00111240			TRW/IRC 60100781	T055 200 K	
0012001	THERMISTOR,CER CURRENT LIMIT,40 OHM RT 1	1	04001129			MIDWEST 60105129	CL0100.11	
0013001	CAP, ALUM ELEC: AXL 75V 150 UF C 1	1	00315143			SPRAGUE 60100690	39D157G075FJ0	
0014001	TRANSISTOR, PNP HIGH VOLTAGE Q 2,3	2	00500132			MOTO SEMI 60100872	MPSA92	
0015001	TRANSISTOR, NPN POWER Q 1	1	00500348			MOTO SEMI 60100872	MJE521	

P A R T S L I S T

PREP JMT 03/24/81
CHECK JMT 04/29/81
APRVD DJF 04/29/81

TITLE OR DESCRIPTION	PART/DRAWING #	DWG SIZE	DWG REV	P/L REV
PC ASSEMBLY, -48V SUPPLY (A6) 03038	20015079	B	C	A

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	DR SZ	DR RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
001600	IC, LIN,DUAL LO PWR BI-FET OP AMP U 1	1	1	00702050			TI SEMI 60100894	TL062CP	
001650	SCKT,IC,LO PROF: GOLD 8 PIN	1	1	05016274			T I METAL 60106093	C93-08-02	
001700	DIODE, RECTIFIER, 1A D 1-7	7	1	04000824			MOTO SEMI 60100872	1N4005	
001800	DIODE, ZENER, 51V +/-5% VR 1	1	1	04001137			MOTO SEMI 60100872	1N5262B	
001900	DIODE, ZENER, 30V +/-5%, 1W VR 2	1	1	04001194			MOTO SEMI 60100872	1N4751A	
002000	HEADER, STR POST, .100 OC 12 POS J 19	1	1	05201819			AMP 60100062	1-87348-2	
002100	HDR,STR POST: .156 OC W/LOCK 3 POS J 18	1	1	05200126			MOLEX 60101847	09-65-1031	
002200	SCHEMATIC, -48V SUPPLY (A6)	REF	1	50010826	B	A	WILCOM 60000015	0303-B -	

******* END OF PARTS LIST *******

P A R T S L I S T

TITLE OR DESCRIPTION

SEND LEVEL SWITCH ASSEMBLY (A7) 0303

PART/DRAWING # 20012472 | DWG SIZE B | DWG REV A | P/L REV 9

PREP SPT 03/19/80
CHECK DGT 11/25/80
APRVD DJF 11/25/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION		QUANT	WILCOM PART/DWG	DR SZ	DR RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
000100	PC BOARD, ATTENUATOR CONNECTOR		1	00904870	B	-	WILCOM 60000015	0303-	
000150	SOLDER MASK FOR 00904870		REF 1	50007673	B	-	WILCOM 60000015	0303- -	11382
000200	THUMBWHEEL SWITCH ASSEMBLY		1	01102979	A	-	WILCOM 60000015	0303- -	11468
	S 4								
000300	CABLE ASSEMBLY, ATTENUATOR	(W4)	1	20012514	B	A	WILCOM 60000015	0303- -	11468
	W 4								
000400	HDR, R.A.,1 .100 DC	6 POS	3	05201650			MOLEX 60101847	22-05-2061	

******* END OF PARTS LIST *******

P A R T S L I S T

TITLE OR DESCRIPTION	PART/DRAWING #	DWG SIZE	DWG REV	P/L REV		
* CPU CHASSIS ASSEMBLY (A5) 03038 *	20015087	D	B	B	PREP JMT	04/02/81
					CHECK JMT	04/29/81
					APRVD DJF	04/29/81

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	IST	WILCOM PART/DWG	DR SZ	DR RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
000100	CHASSIS DETAIL, CPU	1	1	04413514	B	A	WILCOM 60000015	0303- -	
000150	PC ASSEMBLY, -48V SUPPLY (A6) A 6	1	1	20015079	B	C	WILCOM 60000015	0303-B -	11468
000200	PC ASSEMBLY, CPU/TONE GENERATOR (A3) A 3	1	1	20014585	C	A	WILCOM 60000015	0303- -	11468
000300	BRACKET, FUSE HOLDER	1	1	04412011	A	-	WILCOM 60000015	0303-	
000400	BRACKET, SWITCH	1	1	04407870	A	-	WILCOM 60000015	0196	
000450	SHAFT, SWITCH OPERATING	1	1	04407896	A	-	WILCOM 60000015	0196CK	
000500	TRANSFORMER, POWER T 1	1	1	04202016	B	-	WILCOM 60000015	0303- -	
000600	SW, TOG, MINIATURE PWR, DPDT S 1	1	1	01102680			C&K 60101128	9201SM3ZQE	11468
000700	BATTERY, NI-CAD: 7.2 V, 1.2 AH BT 1	1	1	05020219			SAFT 60100900	BA511-6	
000800	BUSHING, PANEL: .250" SHAFT	1	1	05019815			H H SMITH 60101300	119	
000900	FUSE HOLDER, 1/4X1-1/4, BLK, RND	1	1	05000427			NOTE 60103975	NOT FOR NEW DESIGNS	
001000	FUSE, NORM: (1/4X1-1/4) 125 MA F 2	1	1	05000344			LITTLEFUSE 60101565	AGC1/8	11569
001050	HOUSING, .156 OC LOCKING 3 POS P 18	1	1	05200092			MOLEX 60101847	09-50-3031	
001100	CONNECTOR, PLUG WITH EARS 4 POS	1	1	05203203			MOLEX 60101847	03-06-2041	
001200	HOUSING, .100 OC LOCKING 6 POS P 9	1	1	05201769			AMP 60100062	1-87175-3	

P A R T S L I S T

TITLE OR DESCRIPTION: CPU CHASSIS ASSEMBLY (AS) 0303R

PART/DRAWING #: 20015087 | DWG SIZE: 0 | DWG REV: B | P/L REV: B

PREP JMT 04/02/81
CHECK JMT 04/29/81
APRVD DJF 04/29/81

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	DR	SZ	IR	V	SOURCE INFORMATION: MFR NAME/NO.	MFR PART NO.	ECO NO.
001300	CONTACT, MALE, TIN PLATE, 18-24GA	41		05201009					MOLEX 60101447	02-06-2103	
001400	CONTACT, LOCKING, 22-26 AWG	51		05201843					AMP 60100062	87124-2	
001450	CONT,FEM,TIN PL,22-26AWG(.045 MX OD)	21		05200886					MOLEX 60101847	08-50-0108	
001500	KEYING DEVICE	11		05201835					AMP 60100062	87179-1	
001600	MS, PHIL, PAN HD 4-40 X .250	41		04602041	IR		-		WILCOM 60000015	S P 4-40X.250	
001650	MS, PHIL, PAN HD 4-40 X .312	41		04602058	IR		-		WILCOM 60000015	S P 4-40X.312	
001700	MS, PHIL, PAN HD 6-32 X .250	11		04602124	IR		-		WILCOM 60000015	S P 6-32X.250	
001750	MS, PHIL, PAN HD 6-32 X .375	21		04602140	IR		-		WILCOM 60000015	S P 6-32X.375	
001800	MS, PHIL, RND HD 6-32 X 2.000	21		04602751	IR		-		WILCOM 60000015	S S 6-32X2.000	
001900	LOCKWASHER, HEL SPRING #4	61		04600599	IR		-		WILCOM 60000015	W H 4	
002000	LOCKWASHER, HEL SPRING #6	81		04600821	IR		-		WILCOM 60000015	W H 6	
002050	LOCKWASHER, EXT TOOTH #6	21		04600847	IR		-		WILCOM 60000015	W E 6	
002100	WASHER, FLAT #6	21		04601027	IR		-		WILCOM 60000015	W F 6	
002200	WSHR, FLAT, (1/2 OD,1/32 THK) #6	21		04603072	IR		-		FED SCREW 60500170	97419	
002400	CABLE ANCHOR, NYLON: ADHESIVE BACK	11		05003702					PANDUIT 60101581	ABMM-A	

P A R T S L I S T

TITLE OR DESCRIPTION	PART/DRAWING #	DWG SIZE	DWG REV	P/L REV		
CPU CHASSIS ASSEMBLY (AS) 03038	20015087	D	B	H	PREP JMT	04/02/81
					CHECK JMT	04/29/81
					APRVD DJF	04/29/81

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ISS	WILCOM PART/DWG	DRI SZ	DR REV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
002500	CABLE TIE (3/4" MAX DIA BUNDLE)	1		05001227			TYTON 60103926	T18R	
002600	TUBING, HEAT SHRINK, 1/8 DIA BLK	A/R		04800173			ALPHA 60101284	FIT 221-1/8" BLK	
002650	TUBING, HEAT SHRINK, 1/4 DIA BLK	A/R		04800165			ALPHA 60101284	FIT 221-1/4" BLK	
002700	TUBING, HEAT SHRINK, 1/2 DIA YEL	A/R		04800223			ALPHA 60101284	FIT 221-1/2" YEL	
002800	WIRE, HOOKUP 22AWG (7X30) BLK	A/R		04800452			BELDEN 60101250	8503 BLK	
002900	WIRE, HOOKUP 22AWG (7X30) BRN	A/R		04800348			BELDEN 60101250	8503 BRN	
003000	WIRE, HOOKUP 22AWG (7X30) RED	A/R		04800363			BELDEN 60101250	8503 RED	

******* END OF PARTS LIST *******

PARTS LIST

TITLE OR DESCRIPTION

PREP JMT 04/02/81

CHECK JMT 04/29/81

APRVD DJF 04/29/81

* MAIN CHASSIS ASSEMBLY (A1) 03038 * PART/DRAWING * 20015095 DWG SIZE CM DWG REV C P/L REV H

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION		QUAN	ST	WILCOM PART/DWG	DR SZ	DR REV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
000100	PANEL		1	1	04413894	B	-	WILCOM 60000015	0303-B -	
000200	MADE-FROM		****							
000300	PANEL DETAIL		REF		04413902	C	-	WILCOM 60000015	0303-B -	
000400	PANEL LAYOUT		REF		50010859	B	-	WILCOM 60000015	0303-B -	
000500	MAIN CHASSIS, FASTENER ASSEMBLY		1	1	20014163	A	-	WILCOM 60000015	0303- -	
000600	PC ASSEMBLY, INTERFACE & POWER SUPPLY A 2	(A2)	1	1	20015129	C	D	WILCOM 60000015	0303-B -	1468
000700	PC ASSEMBLY, KEYBOARD A 4	(A4)	1	1	20012456	C	B	WILCOM 60000015	0303- -	1468
000800	HARNESS ASSEMBLY, MAIN W 1	(W1)	1	1	20015061	C	A	WILCOM 60000015	0303-B -	1468
000900	CPU CHASSIS ASSEMBLY A 5	(A5)	1	1	20015087	D	B	WILCOM 60000015	0303-B -	1468
001000	CABLE ASSEMBLY W 2,3		2	1	20012522	B	-	WILCOM 60000015	0303- -	1468
001100	SEND LEVEL SWITCH ASSEMBLY A 7	(A7)	1	1	20012472	B	A	WILCOM 60000015	0303- -	1468
001200	SWITCH, TOGGLE, 4POT, SOLDER TERM S 2		1	1	01100139			ALCOSWITCH 60101060	MTA-406N	1468
001300	POT, CTRL: 1/2 DIA, 1T 10 K R 1		1	1	00108233			A-B 60101433	WA2G056S103UA	1486
001400	SPEAKER GRILLE		1	1	04412086	A	-	WILCOM 60000015	0303- -	
001500	LOUDSPEAKER, 1.5 INCH, 8 OHM LS 1		1	1	05400858			MOUSERCORP 60105152	25SP016	1468

P A R T S L I S T

TITLE OR DESCRIPTION	PART/DRAWING #	DAG SIZE	DAG REV	P/L REV		
* MAIN CHASSIS ASSEMBLY (A1) 0303m *	20015095	CM	C	B	PREP JMT	04/02/81
					CHECK JMT	04/29/81
					APRVD DJF	04/29/81

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUANIST	AILCOM PART/DWG	DRI SZ	DRI RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
001600	LED, RED DIF, HI INTEN T 1-3/4 CYL DS 4-6	3	04001095		A	H.P. 60100393	5082 4655	1468
001650	LED HOLDER, RED	6	05001771		A	VISUALCOMM 60101854	CLF280RTP	
001700	KNOB, BLK: 1/2 DIA 1/8 BUSH	1	05001649		A	BUCKEYE 60100153	PS-50-1-BLK	
001800	CABLE ANCHOR, NYLON: ADHESIVE BACK	1	05003702		A	PANDUIT 60101581	ABMM-A	
001900	CABLE TIE (3/4" MAX DIA BUNDLE)	1	05001227		A	TYTON 60103924	T18R	
002000	JACK, PH: 3 COND (T CL90/R OPN CKTS) J 16,17	2	05202361		A	SWCRAFT 60100732	N-113R	1486
002150	RES, STRL FILM: 1%, .25W 10.0 K R 1	1	00102061		A	TRW/IRC 60100781	T055 10.0 K	
002200	JACK, PH:3 COND(DBL OPN,SLDR TERM) J 10-15	6	05202106		A	SWCRAFT 60100732	M-1129	1468
002300	VARISTOR, PROTEC, MAX DC VOLT, 66V RV 1	1	04001145		A	GE SEMI 60103405	V82ZA2	
002400	HOUSING, .100 OC LOCKING 4 POS P 8	1	05201751		A	AMP 60100062	1-87175-0	
002500	CONTACT, LOCKING, 22-26 AWG	3	05201843		A	AMP 60100062	87124-2	
002600	KEYING DEVICE	1	05201835		A	AMP 60100062	87179-1	
002700	HOLD COIL L 1	1	04201901	B	A	AILCOM 60000015	0303- -	1468
002800	HANDLE, ROUND, INTERNAL	2	05020250		A	POSITRONIC 60105061	25R4-8-C06482	
002900	TUBING, HEAT SHRINK, 1/8 DIA BLK	A/R	04800173		A	ALPHA 60101284	FIT 221-1/8" BLK	

P A R T S L I S T

TITLE OR DESCRIPTION	PART/DRAWING #	DWG SIZE	DWG REV	P/L REV		
MAIN CHASSIS ASSEMBLY (A1) 03033	20015045	CM	C	B	PREP JMT	04/02/81
					CHECK JMT	04/29/81
					APRVD DJF	04/29/81

LINE NUMBER	TITLE OR DESCRIPTION REFERENCE DESIGNATION	QUANTITY	WILCOM PART/DWG	DR SIZE	DR REV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
003000	LOCKWASHER, HEL SPRING #2	4	04600573	R	-	WILCOM 60000015	W H 2	
003100	LOCKWASHER, HEL SPRING #4	12	04600599	R	-	WILCOM 60000015	W H 4	
003200	LOCKWASHER, HEL SPRING #8	1	04601209	R	-	WILCOM 60000015	W H 8	
003300	WASHER, FLAT #4	6	04600730	R	-	WILCOM 60000015	W F 4	
003350	WASHER, FLAT:OD 9/16,THK.020,ID 3/8	7	04603429	R	-	WILCOM 60000015	W F #332-020-8-9	
003400	MS, PHIL, PAN HD 4-40 X .188	2	04602843	R	-	WILCOM 60000015	S P 4-40X.188	
003500	MS, PHIL, PAN HD 4-40 X .312	2	04602058	R	-	WILCOM 60000015	S P 4-40X.312	
003600	MS, PHIL, PAN HD 4-40 X .250	4	04602041	R	-	WILCOM 60000015	S P 4-40X.250	
003700	MS, PHIL, PAN HD 4-40 X .375	6	04602066	R	-	WILCOM 60000015	S P 4-40X.375	
003800	MS, PHIL, PAN HD 8-32 X .375	4	04602256	R	-	WILCOM 60000015	S P 8-32X.375	
003900	MS, PHIL, FLAT HD 2-56 X .375	4	04603114	R	-	WILCOM 60000015	S F 2-56X.375	
004000	MS, PHIL, FLAT HD 4-40 X .312	4	04602421	R	-	WILCOM 60000015	S F 4-40X.312	
004100	MS, PHIL, FLAT HD 4-40 X .375	2	04602439	R	-	WILCOM 60000015	S F 4-40X.375	
004200	NUT, HEX, 3/16 AF 2-56	4	04600540	R	-	WILCOM 60000015	N H 2-56	
004300	NUT, HEX, 1/4 AF 4-40	2	04600581	R	-	WILCOM 60000015	N H 4-40	

P A R T S L I S T

TITLE OR DESCRIPTION — PREP JMT 04/02/81

	PART/DRAWING #	DWG SIZE	DWG REV	P/L REV	CHECK JMT 04/29/81
* MAIN CHASSIS ASSEMBLY (A1) 03038 *	20015095	CM	C	B	APRVD DJF 04/29/81

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUANTITY	WILCOM PART/DWG	DRI SZ	DR REV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
004400	NUT, HEX, 1/2 AF 3/8-32	11	04600011	R	-	WILCOM 60000015	N H .375-32	
004500	SIMPLIFIED SCHEMATIC & INTERCONNECT DIAGRAM	REF	50010800	D	B	WILCOM 60000015	0303-B -	

******* END OF PARTS LIST *******

P A R T S L I S T

TITLE OR DESCRIPTION

* CASE ASSEMBLY 0303B *

PART/DRAWING # 20015366 | DWG SIZE C | DWG REV A | P/L REV A

PREP DGT 05/05/81
CHECK DGT 05/07/81
APRVD DJF 05/07/81

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUANIST	WILCOM PART/DWG	ORI SIZ	ORI REV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
0001001	CASE	1 1	04412102	C	B	WILCOM 60000015	0303- -	
0003001	HINGE, FEMALE (WITH STOP)	2 1	05001391			NIELSON 60100518	3517 NE	
0004001	CATCH	1 1	05001375			ZERO 60100856	ZSP2-220-2	
0005001	RUBBER BUMPER, 3/8 HIGH	4 1	05001300			RUSSELLIND 60102050	REC-2095S	
0006001	HARNESS ASSEMBLY, AC POWER	1 1	20014395	A	A	WILCOM 60000015	0303- -	
0007001	STUD, OVAL HEAD (WITH LOCKING RING)	2 1	04600359			SIMMONS 60100674	C-2	
0010001	RIVET, TUBLR, S NI PLATE 4/16 L	7 1	04600367			ACME RIV 60101458	JT-218X4/16 S NI	
0011001	MS, PHIL, PAN HD 4-40 X .375	2 1	04602068	R	-	WILCOM 60000015	S P 4-40X.375	
0012001	MS, PHIL, PAN HD 6-32 X .375	4 1	04602140	R	-	WILCOM 60000015	S P 6-32X.375	
0013001	WASHER, FLAT 3/8 ID	4 1	04600292	R	-	WILCOM 60000015	W F 3/8	
0014001	WASHER, FLAT, NYLON (THIN) #4	2 1	04600136			AMATOM 60100039	2202-N116	
0015001	LOCKWASHER, HEL SPRING #4	2 1	04600599	R	-	WILCOM 60000015	W H 4	
0016001	NUT, HEX, 1/4 AF 4-40	2 1	04600581	R	-	WILCOM 60000015	N H 4-40	
0017001	LABEL, PRODUCT IDENTIFICATION	1 1	06910188	A	A	WILCOM 60000015	0000-00-005	1569

******* END OF PARTS LIST *******

P A R T S L I S T

TITLE OR DESCRIPTION	PART/DRAWING #	DWG SIZE	DWG REV	P/L REV		
					PREP SPT	10/22/80
HARNESS ASSEMBLY, AC POWER 0303	20014395	A	A	A	CHECK DGT	11/25/80
					APRVD DJF	11/25/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	DWG SIZE	DWG REV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
000100	RECEPTACLE, POWER: 6A (NEW STYLE)	1	1	05201678			SWCRAFT 60100732	EAC-301	
000200	CONN, RECEP, W/EARS 4 POS	1	1	05203211			MOLEX 60101847	03-06-1041	11382
000300	CONTACT, FEMALE, TIN PL, 18-24	2	1	05202726			MOLEX 60101847	02-05-1103	
000400	SOLDER LUG (FOR #6 FASTENER)	1	1	05019781			H H SMITH 60101300	1414-6	
000500	WIRE, HOOKUP 22AWG UL 1015 BRN	A/R	1	04801122			ALPHA 60101284	3071 BRN	
000600	WIRE, HOOKUP 22AWG UL 1015 BLU	A/R	1	04801130			ALPHA 60101284	3071 BLU	
000700	WIRE, HOOKUP 22AWG UL 1015 GRN/YEL	A/R	1	04801155			ALPHA 60101284	3071 GRN/YEL	
000800	TUBING, HEAT SHRINK, 1/8 DIA BLK	A/R	1	04800173			ALPHA 60101284	FIT 221-1/8" BLK	

******* END OF PARTS LIST *******

P A R T S L I S T

TITLE OR DESCRIPTION

HARNESS ASSEMBLY, MAIN (A1) 03038

PART/DRAWING # 2001501A1

DWG SIZE: C | DWG REV: A | P/L REV: - | PREP JMT 04/02/81 | CHECK DJF 04/29/81 | APRVD DJF 04/29/81

LINE NUMBER	TITLE OR DESCRIPTION REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	DR SZ	DR RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
0001001	HOUSING, .100 OC LOCKING 12 POS P 19	1	1	05201793			AMP 60100062	2-87175-5	
0002001	HOUSING, .100 OC LOCKING 10 POS P 6,7	2	1	05201785			AMP 60100062	2-87175-1	
0003001	CONTACT, LOCKING, 22-26 AWG	27	1	05201843			AMP 60100062	87124-2	
0004001	KEYING DEVICE	3	1	05201835			AMP 60100062	87179-1	
0005001	WIRE, HOOKUP 22AWG (7X30) BLK	A/R	1	04A00462			BELDEN 60101250	8503 BLK	
0006001	WIRE, HOOKUP 22AWG (7X30) RED	A/R	1	04A00363			BELDEN 60101250	8503 RED	
0007001	WIRE, HOOKUP 22AWG (7X30) YEL	A/R	1	04A00322			BELDEN 60101250	8503 YEL	
0008001	WIRE, HOOKUP 22AWG (7X30) GRN	A/R	1	04A00405			BELDEN 60101250	8503 GRN	
0009001	WIRE, HOOKUP 22AWG (7X30) BLU	A/R	1	04A00439			BELDEN 60101250	8503 BLU	
0010001	WIRE, HOOKUP 22AWG (7X30) WHT	A/R	1	04A00355			BELDEN 60101250	8503 WHT	
0011001	WIRE, HOOKUP 22AWG (7X30) WHT/BLK	A/R	1	04A00389			BELDEN 60101250	8503 WHT/BLK	
0012001	WIRE, HOOKUP 22AWG (7X30) WHT/RED	A/R	1	04A00496			BELDEN 60101250	8503 WHT/RED	
0013001	WIRE, HOOKUP 22AWG (7X30) WHT/YEL	A/R	1	04A00470			BELDEN 60101250	8503 WHT/YEL	
0014001	WIRE, HOOKUP 22AWG (7X30) WHT/GRN	A/R	1	04A00454			BELDEN 60101250	8503 WHT/GRN	
0015001	WIRE, HOOKUP 22AWG (7X30) WHT/BLU	A/R	1	04A00397			BELDEN 60101250	8503 WHT/BLU	

P A R T S L I S T

TITLE OR DESCRIPTION: HARNESS ASSEMBLY, MAIN (W1) 03038

PART/DRAWING #: 20015061 | DWG SIZE: C | DWG REV: A | P/L REV: - | PREP JMT 08/02/81 | CHECK DJF 08/29/81 | APRVD DJF 08/29/81

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	IST	WILCOM PART/DWG	DR	SIZ	REV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
001600	WIRE, HOOKUP 22AWG (7X30) BRN	A/R		04800348				BELDEN 60101250	8503 BRN	
001700	WIRE, HOOKUP 22AWG (7X30) ORN	A/R		04800413				BELDEN 60101250	8503 ORN	
001800	WIRE, HOOKUP 22AWG (7X30) SLT	A/R		04800447				BELDEN 60101250	8503 SLT	
001900	WIRE, HOOKUP 22AWG (7X30) WHT/BRN	A/R		04800488				BELDEN 60101250	8503 WHT/BRN	
002000	WIRE, HOOKUP 22AWG (7X30) WHT/ORN	A/R		04800371				BELDEN 60101250	8503 WHT/ORN	
002100	WIRE, HOOKUP 22AWG (7X30) WHT/SLT	A/R		04800421				BELDEN 60101250	8503 WHT/SLT	
002200	HARNESS SHEET	REF		50010818	AM	-		WILCOM 60000015	0303-R -	

******* END OF PARTS LIST *******

P A R T S L I S T

TITLE OR DESCRIPTION

	PART/DRAWING #	DWG SIZE	DWG REV	P/L REV		
CABLE ASSEMBLY	20012522				PREP SPT	03/20/80
0303		B	-	-	CHECK	/ /
					APRVD	/ /

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	DR SZ	DR RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
0001001	CABLE, RIBBON: 28AWG (7X36) 16 COND	1		04801353			3M FLEX	3365/16	
							60102027		
0002001	MASS TERM DIP CONNECTOR 16 POS	2		05202783			3M FLEX	3416-0000	
							60102027		

******* END OF PARTS LIST *******

P A R T S L I S T

PREP SPT 03/20/80

TITLE OR DESCRIPTION	PART/DRAWING #	D/G SIZE	DWG REV	P/L REV	CHECK / /
CABLE ASSEMBLY, ATTENUATOR (W4) 0303	20012514	B	A	-	APRVD / /

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	DR SZ	DR RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
000100	CABLE, RIBBON: 28AWG (7X36) 16 COND	11		04801353			3M ELEX 60102027	3365/16	
000200	MASS TERM DIP CONNECTOR 16 POS	21		05202783			3M ELEX 60102027	3416-0000	

******* END OF PARTS LIST *******

P A R T S L I S T

TITLE OR DESCRIPTION

MAIN CHASSIS, FASTENER ASSEMBLY 0303

PART/DRAWING # 20014163

	DWG SIZE	DWG REV	P/L REV	
	A	-	-	

PREP SPT 10/22/80
CHECK SPT 10/23/80
APRVD DJF 10/30/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	OR SZ	OR RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
000100	CHASSIS, MAIN	1		04411930	IC	IC	WILCOM 60000015	0303-	
000200	RECEP(FOR 0-2 STUD) .120-.134 GRIP	2		04600342			SIMMONS 60100674	P2-13	
000300	RIVET, 100 DEG CSK, SLD ALUM .250 L	4		04602785			MIL STD 60104791	MS20426 A3-4	

******* END OF PARTS LIST *******

P A R T S L I S T

TITLE OR DESCRIPTION: COVER ASSEMBLY 0303

PART/DRAWING #: 20012555

DWG SIZE: D | DWG REV: A | P/L REV: A

PREP SPT 03/20/80
CHECK SPT 04/01/80
APRVD DJF 04/02/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	ORIGIN SIZE	ORIGIN REV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
0001001	COVER	1	1	04412078	C	A	WILCOM 60000015	0303- -	
0002001	HINGE, MALE (LONG PIN)	1	1	05001417			NIELSON 60100518	3519 NE	
0003001	HINGE, MALE (SHORT PIN)	1	1	05001409			NIELSON 60100518	3518 NE	
0004001	RIVET, TUBLR, S NI PLATE 4/16 L	6	1	04400367			ACME RIV 60101458	JT-218X4/16 S NI	
0005001	BRACKET, SWITCH SHUTOFF	1	1	04412441	A	-	WILCOM 60000015	0303- -	
0006001	STRIKE	1	1	05002720			ZERO 60100856	ZSP2-220-3	
0007001	HANDLE	1	1	05000583	A	-	WILCOM 60000015	0051-00-132	
0007501	LOCKWASHER, HEL SPRING #4	2	1	04600599	R	-	WILCOM 60000015	W H 4	
0008001	MS, PHIL, PAN HD 4-40 X .250	6	1	04602041	R	-	WILCOM 60000015	S P 4-40X.250	1290
0009001	RUBBER BUMPER	1	1	05017355			3M ELEX 60102027	SJ-5012 GREY	1290
0009501	LOCK N' SEAL	A/R	1	05800255			LOCTITE 60103835	LOCK & SEAL 2126	
0010001	LABEL (INSTRUCTIONS)	1	1	06804447	A	A	WILCOM 60000015	0303	

******* END OF PARTS LIST *******

9.0 Backdating Information

9.1 General - This section of the manual provides drawings, schematics and parts lists for production units below serial number 151. Units in this category are identified as Model T303 without the "B" suffix. When servicing units in this category be sure to check Section 10.0 for applicable changes.

9.1.01 Assembly and schematic drawings and parts lists that are identical in both the T303 and T303B are found in Sections 7.0 and 8.0, respectifully.

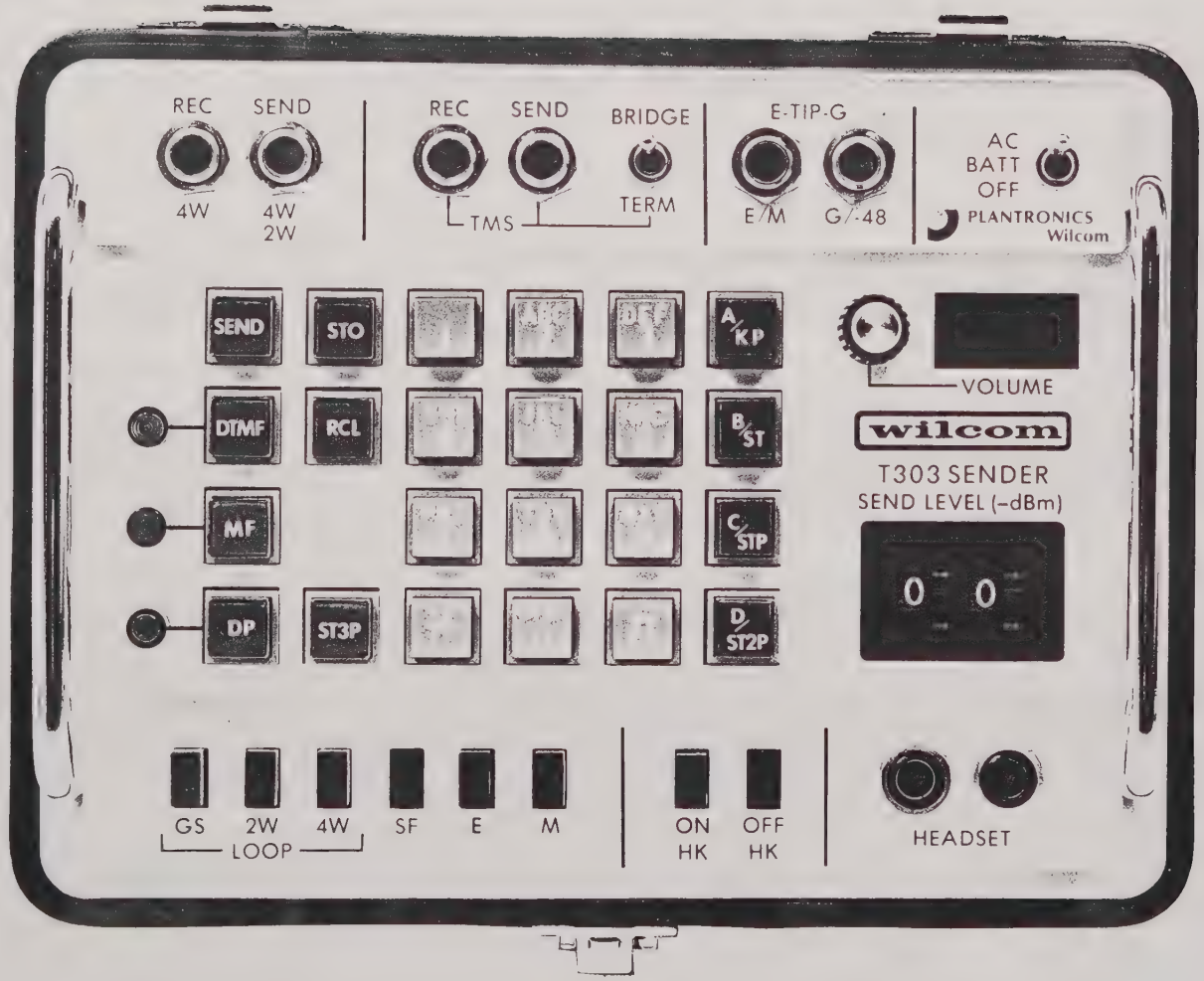


Figure 9-1
Wilcom Model T303
(serial numbers 100 and below)

Figure 9-2
Wilcom Model T303
(serial numbers 101-150)

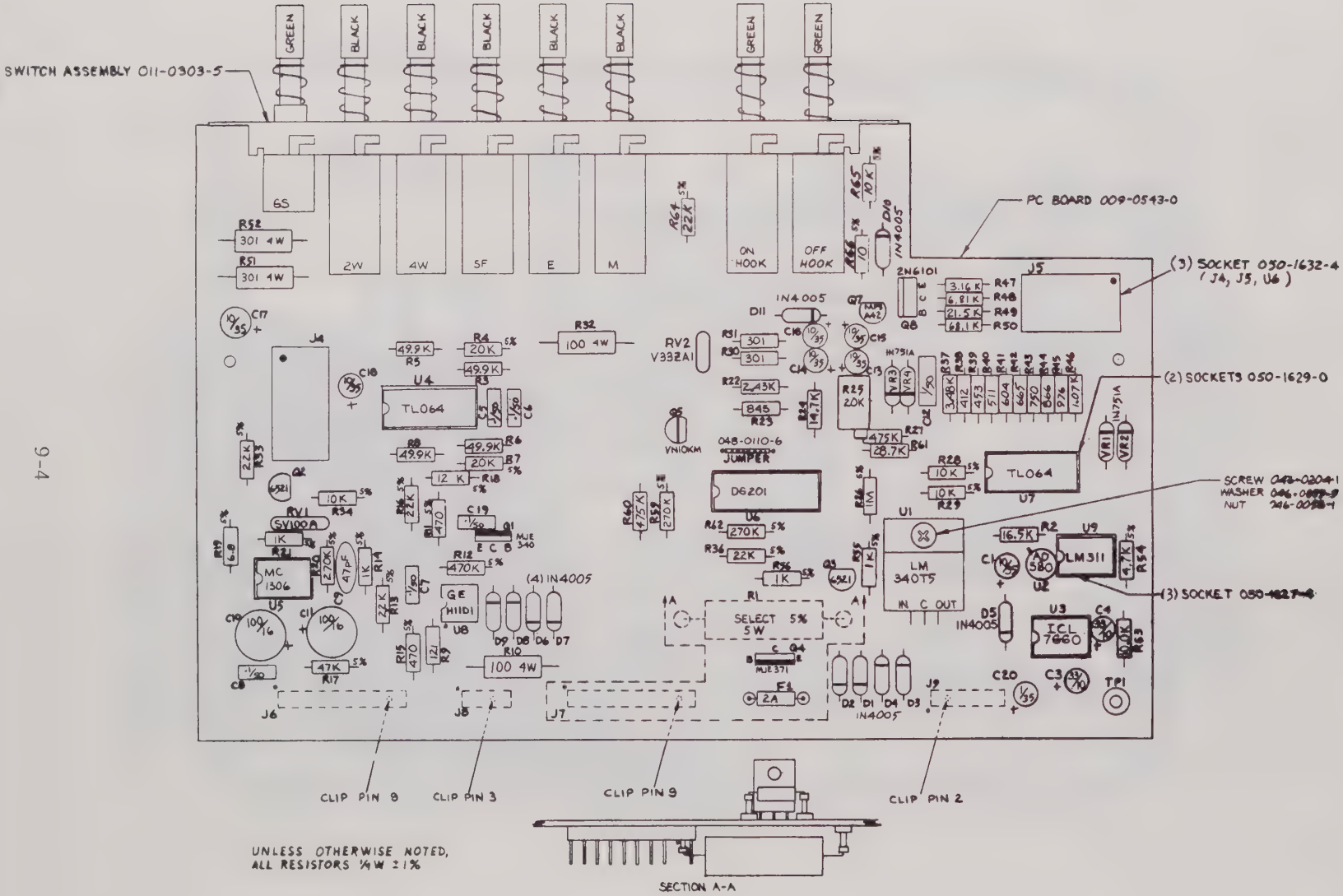
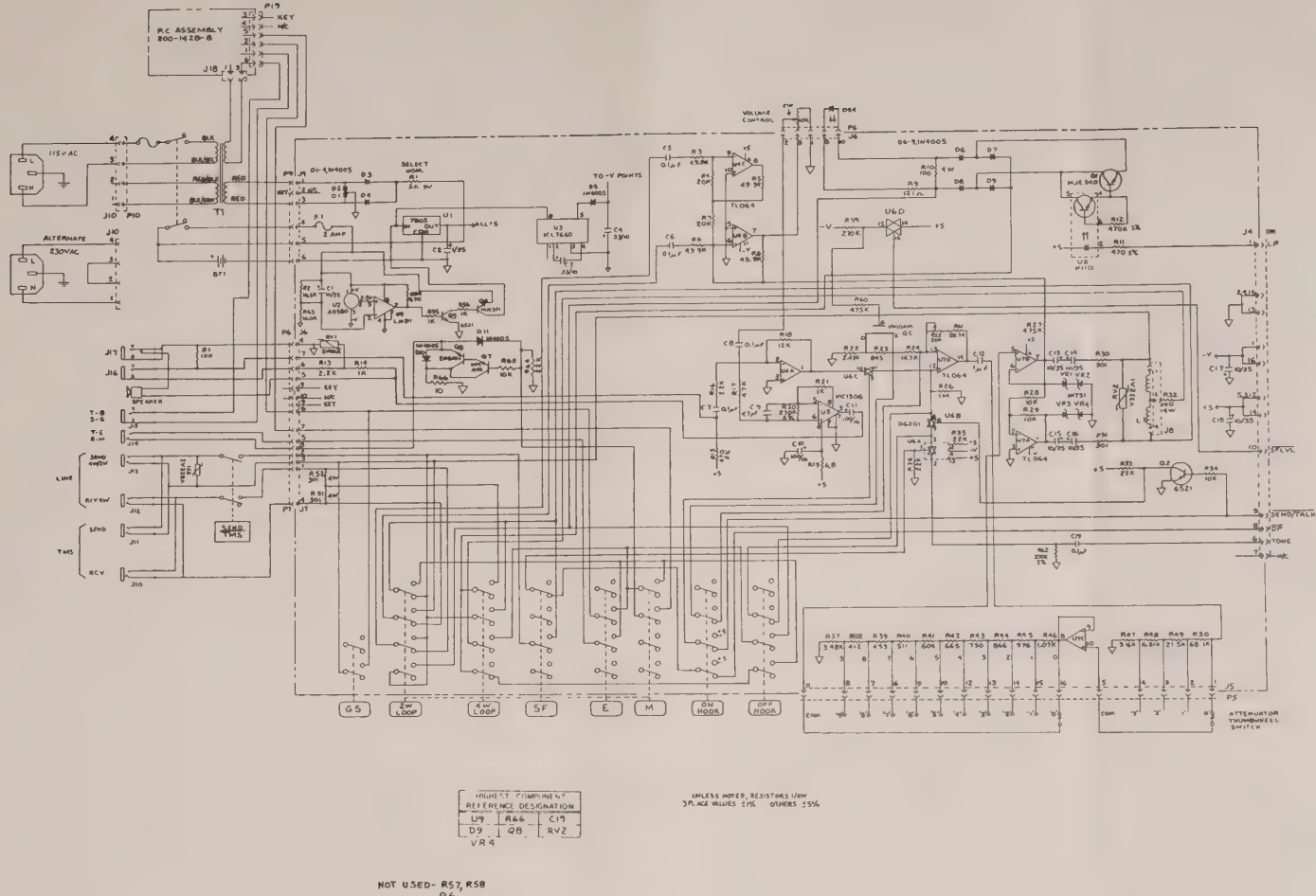


Figure 9-3
Interface & Power Supply

INACTIVE



HIGHEST COMPONENT REFERENCE DESIGNATION		
U9	R46	C19
D9	Q8	RV2

VR4

UNLESS NOTED, RESISTORS 1/4W
3PLACE VALUES ±1% OTHERS ±5%

NOT USED- R57, R58
Q6

Figure 9-4
9-5 Interface & Power Supply
INACTIVE
500-1020-6 REV A

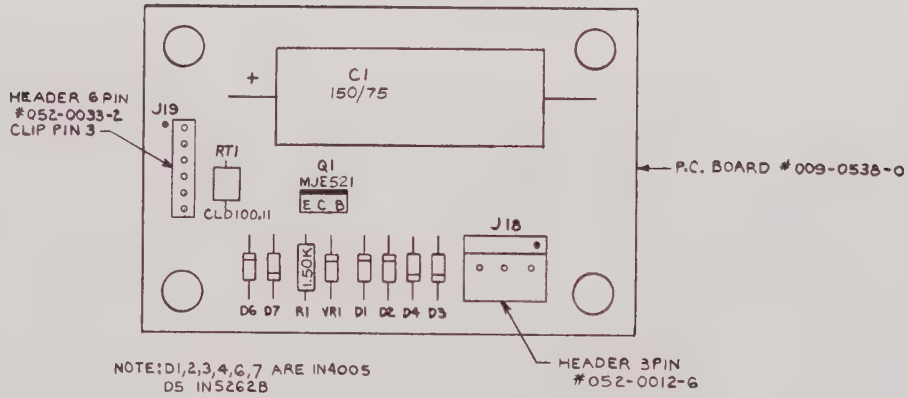


Figure 9-5
-48 V Supply (A6)

INACTIVE

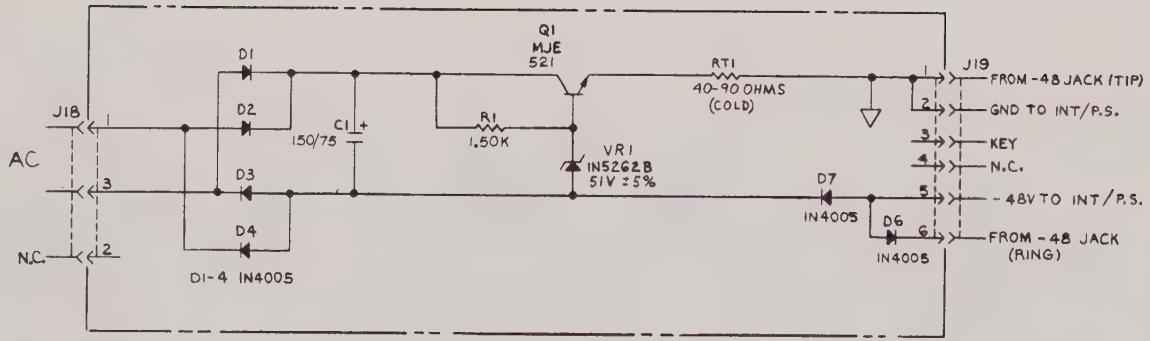
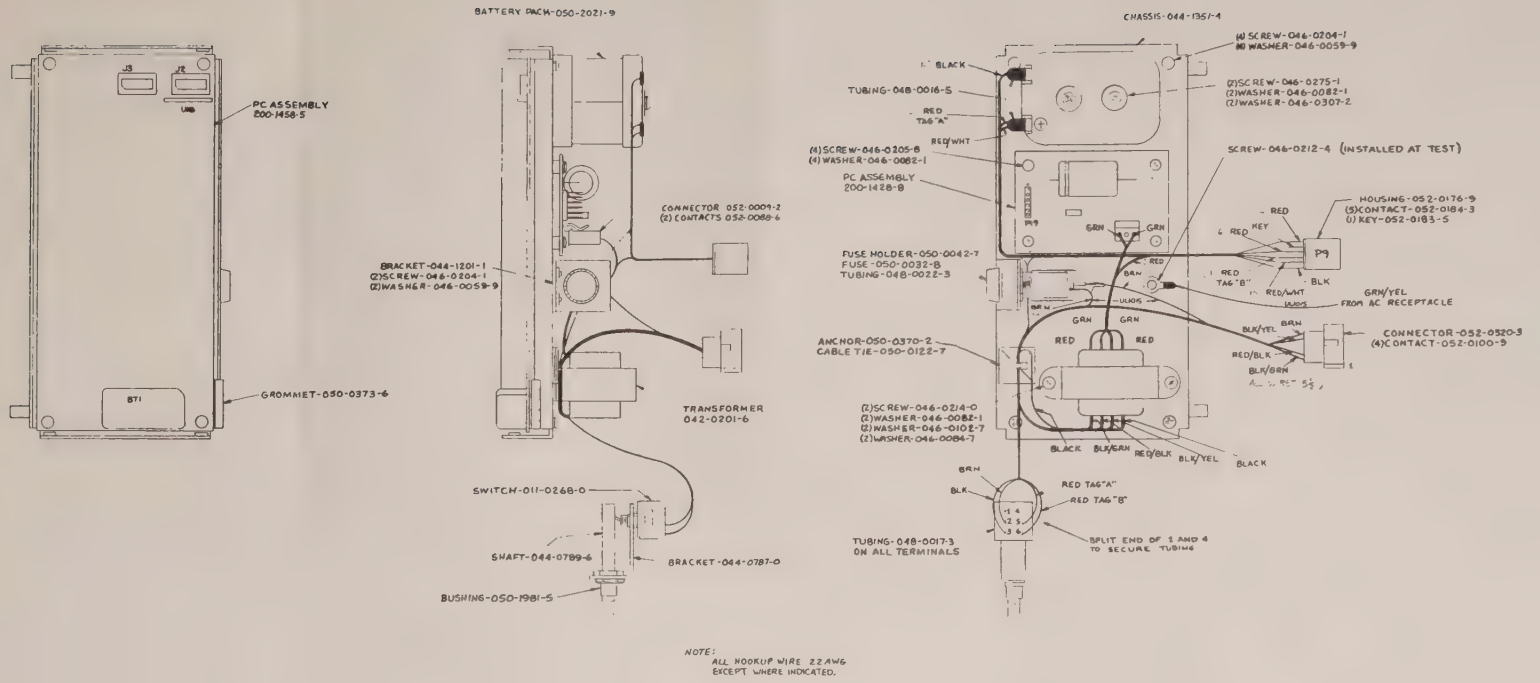


Figure 9-6
-48 V Supply (A6)

INACTIVE

500-0963-8 REV



NOTE:
ALL HOOKUP WIRE 22 AWG EXCEPT WHERE INDICATED.

Figure 9-7
CPU Chassis Assembly
INACTIVE

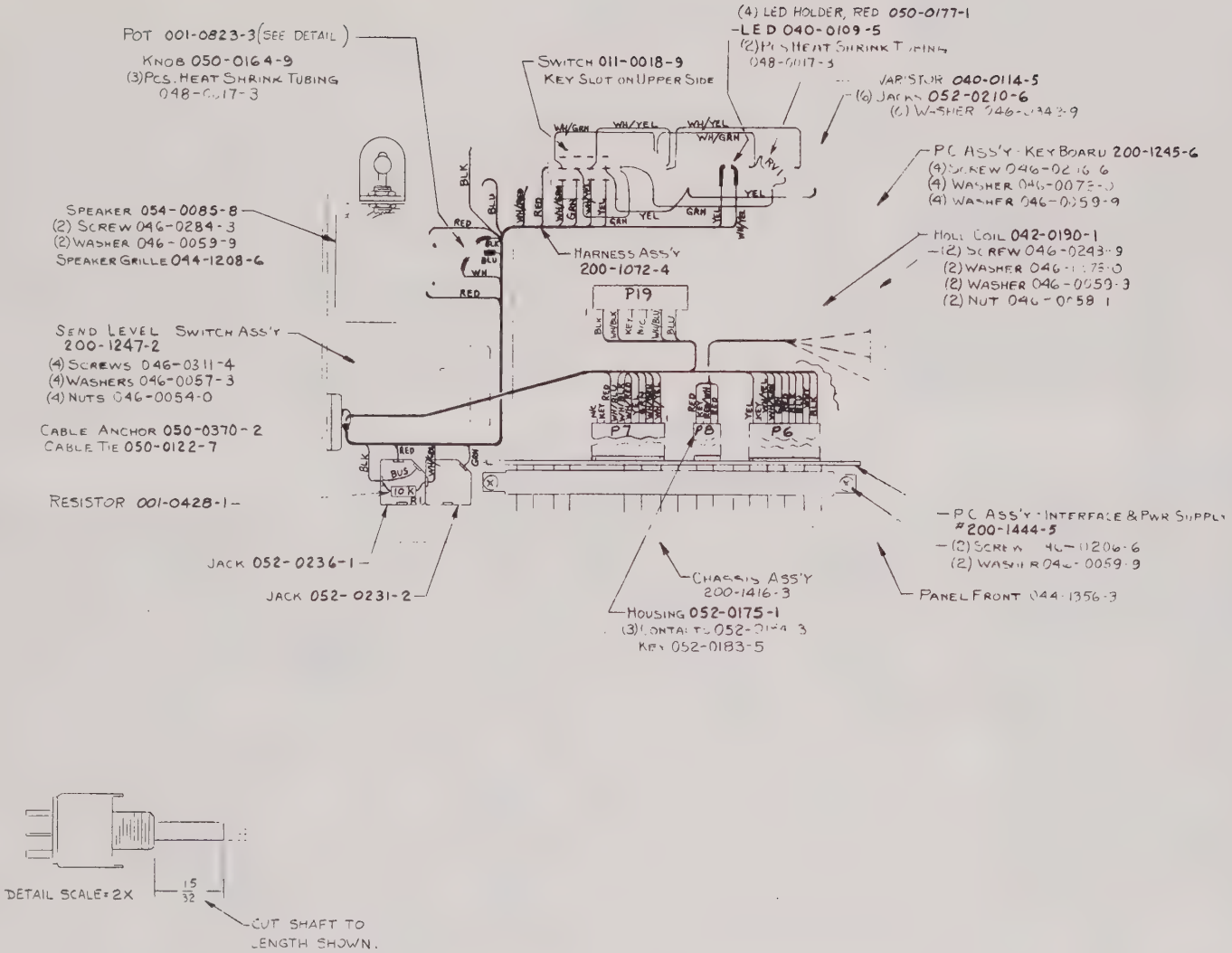


Figure 9-8a
Main Chassis Assembly

INACTIVE
200-1457-7 REV B

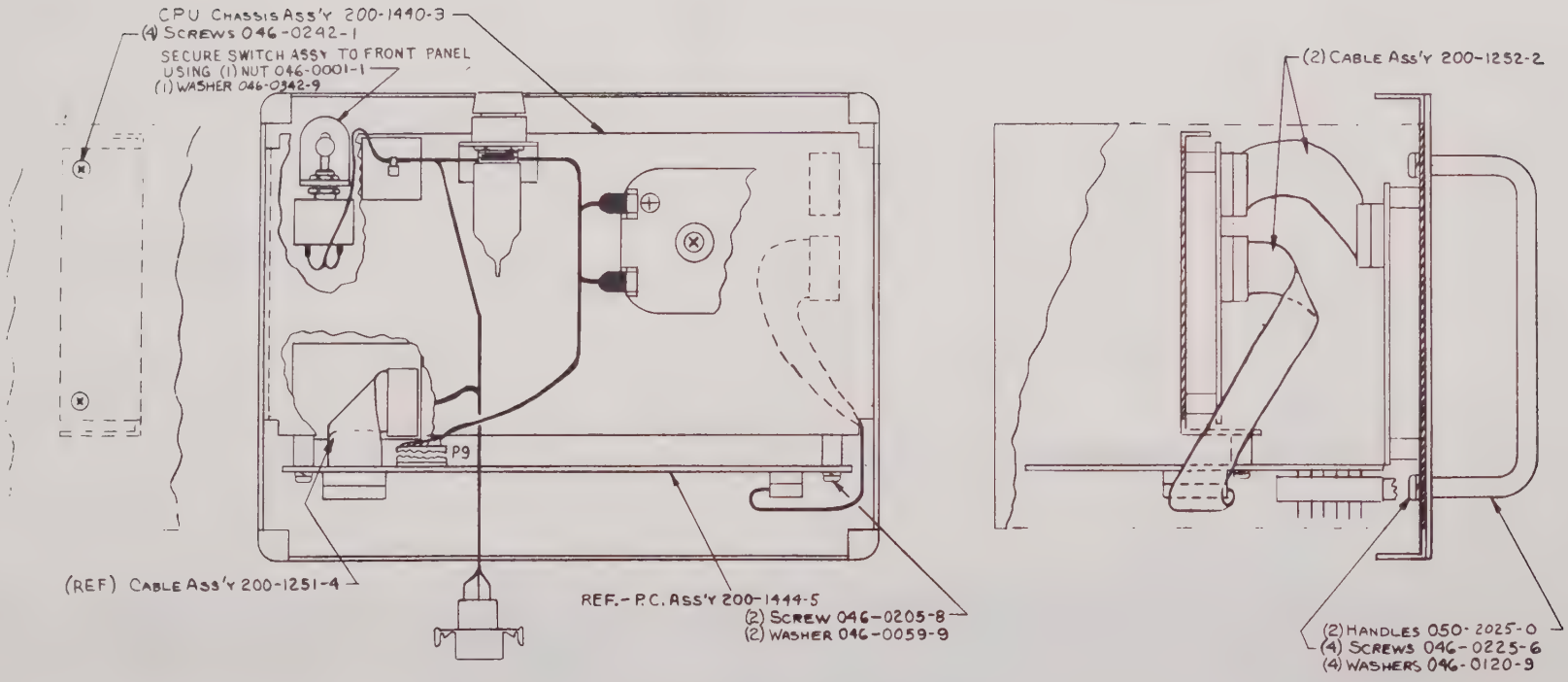


Figure 9-8b
Main Chassis Assembly

INACTIVE

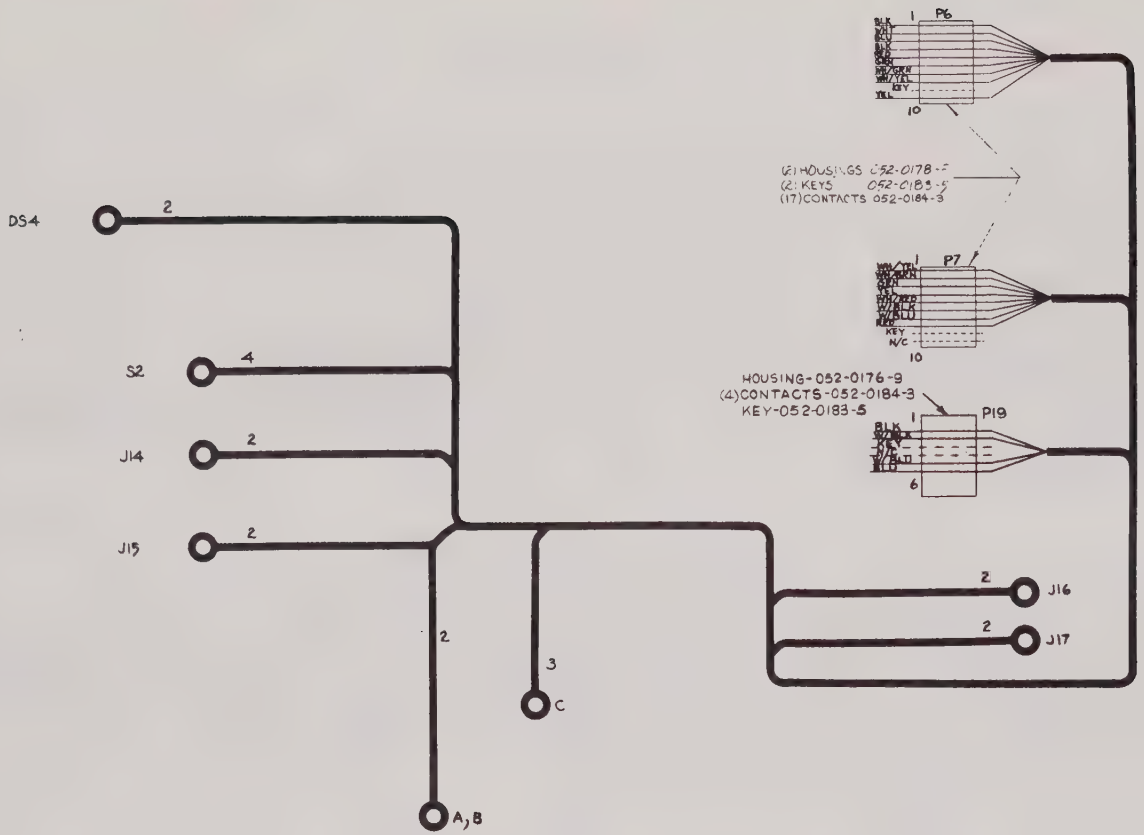


Figure 9-9
Main Harness Assembly

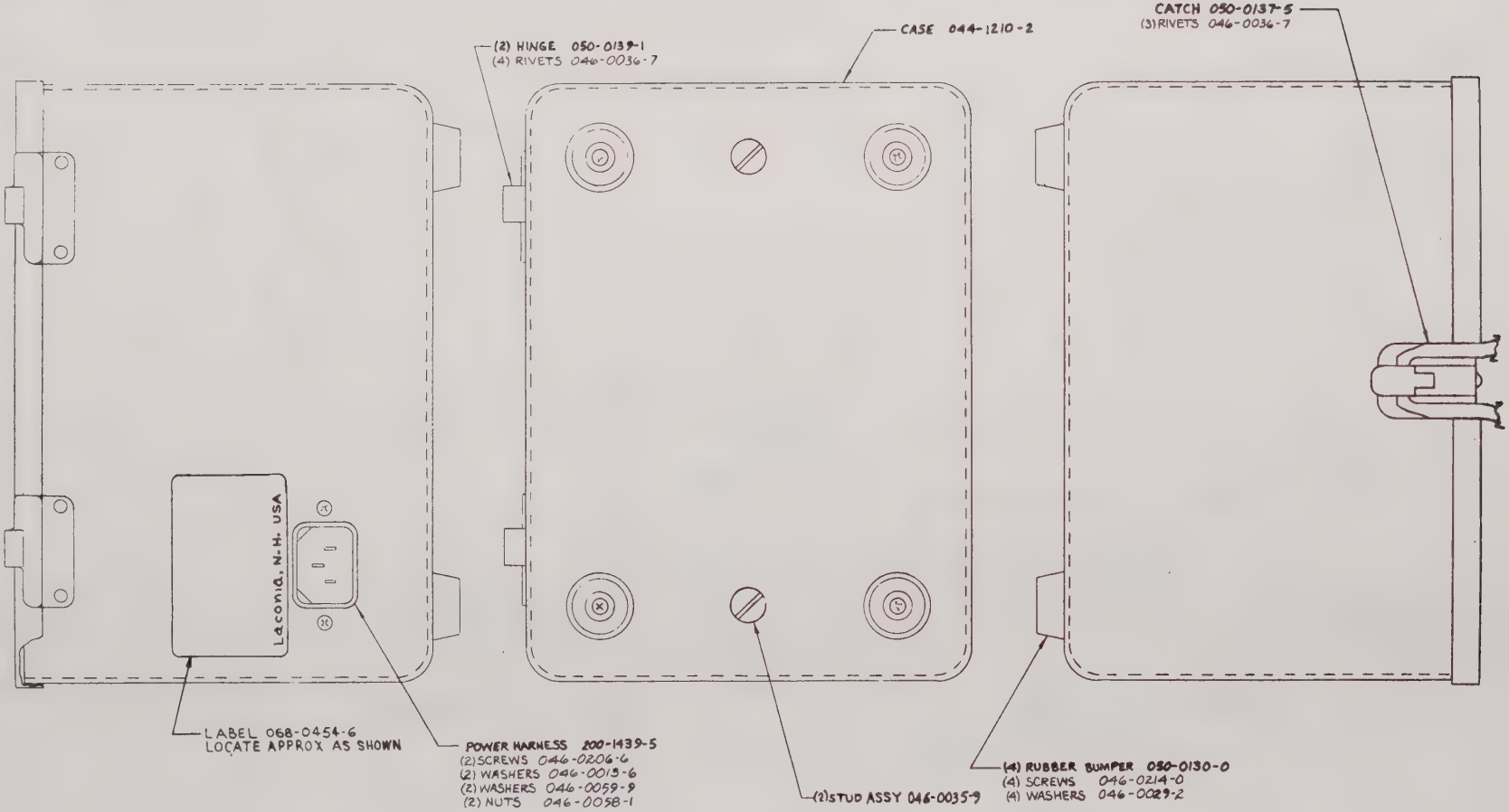


Figure 9-10
Case Assembly

INACTIVE

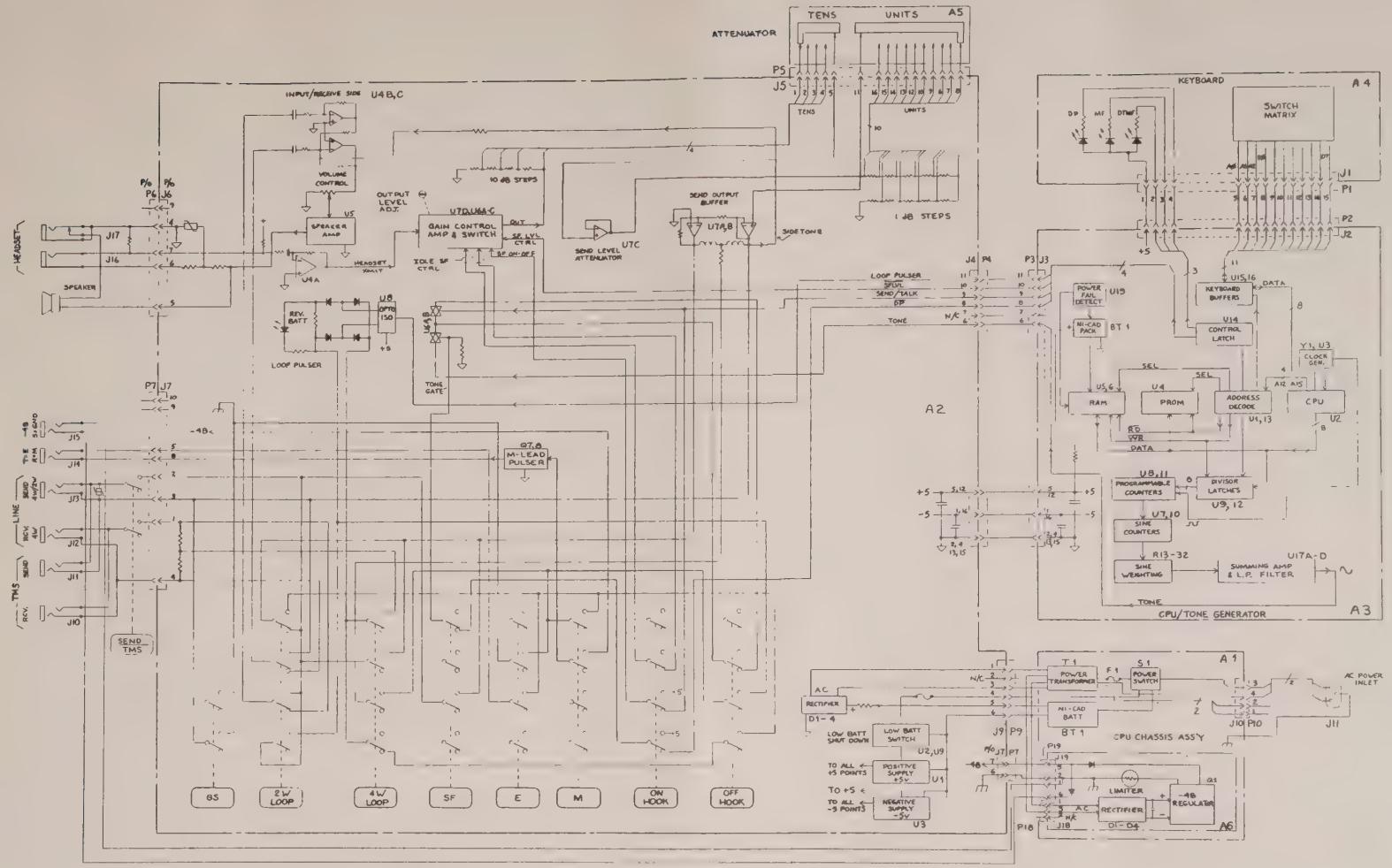


Figure 9-11
Simplified Schematic & Interconnect Diagram

P A R T S L I S T

TITLE OR DESCRIPTION	PART/DRAWING #	DWG SIZE	DWG REV	P/L REV		
					PREP DGT	11/21/80
* T303 SENDER (SN 101 AND ABOVE) *	30303028				CHECK DGT	12/10/80
0303 *		N	-	-	APRVD DJF	12/12/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUANIST	WILCOM PART/DWG	DR SZ	DR RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.		ECO NO.
0001001	MAIN CHASSIS ASSEMBLY	1 1	20014577	1C	1B	WILCOM 60000015	0303-	-	
0002001	CASE ASSEMBLY	1 1	20014569	1C	1-	WILCOM 60000015	0303-	-	
0003001	COVER ASSEMBLY	1 1	20012555	1D	1A	WILCOM 60000015	0303-	-	
0004001	CORD SET, 3 COND (NEW STYLE) BLACK	1 1	06800074			BELDEN 60101250	17250		
0005001	MANUAL, T303/T303B INSTRUCTION	1 1	06808794			WILCOM SAM 60000031	T303/T303B IM	I2R0	

******* END OF PARTS LIST *******

P A R T S L I S T

TITLE OR DESCRIPTION
PC ASSEMBLY, INTERFACE & POWER SUPPLY 0303

PART/DRAWING # 20014445 | DWG SIZE C | DWG REV A | P/L REV A | PREP SPT 10/29/80 | CHECK DGT 11/25/80 | APRVD DJF 11/25/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	OP SZ	OP REV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
000150	PC BOARD, INTERFACE & POWER SUPPLY	1		00905430	C	-	WILCOM 60000015	0303- -	
000200	SOLDER MASK FOR 00905430	REF		50010107	C	-	WILCOM 60000015	0303- -	
000350	RES, STBL FILM: 1%, .25W 121 OHM R 9	1		00108803			TRW/IRC 60100781	T055 121 OHM	
000500	RES, STBL FILM: 1%, .25W 301 OHM R 30,31	2		00110007			TRW/IRC 60100781	T055 301 OHM	
000600	RES, STBL FILM: 1%, .25W 412 OHM R 38	1		00110171			TRW/IRC 60100781	T055 412 OHM	
000700	RES, STBL FILM: 1%, .25W 453 OHM R 39	1		00108845			TRW/IRC 60100781	T055 453 OHM	
000800	RES, STBL FILM: 1%, .25W 511 OHM R 40	1		00108951			TRW/IRC 60100781	T055 511 OHM	
000900	RES, STBL FILM: 1%, .25W 604 OHM R 41	1		00109066			TRW/IRC 60100781	T055 604 OHM	
001000	RES, STBL FILM: 1%, .25W 665 OHM R 42	1		00110049			TRW/IRC 60100781	T055 665 OHM	
001100	RES, STBL FILM: 1%, .25W 750 OHM R 43	1		00110114			TRW/IRC 60100781	T055 750 OHM	
001150	RES, STBL FILM: 1%, .25W 845 OHM R 23	1		00110197			TRW/IRC 60100781	T055 845 OHM	
001200	RES, STBL FILM: 1%, .25W 866 OHM R 44	1		00101253			TRW/IRC 60100781	T055 866 OHM	
001300	RES, STBL FILM: 1%, .25W 976 OHM R 45	1		00101295			TRW/IRC 60100781	T055 976 OHM	
001500	RES, STBL FILM: 1%, .25W 1.07 K R 46	1		00109231			TRW/IRC 60100781	T055 1.07 K	
001525	RES, STBL FILM: 1%, .25W 2.43 K R 22	1		00109272			TRW/IRC 60100781	T055 2.43 K	

P A R T S L I S T

TITLE OR DESCRIPTION: PC ASSEMBLY, INTERFACE & POWER SUPPLY 0303

PART/DRAWING #: 20014445 | DWG SIZE: C | DWG REV: A | P/L REV: A | PREP SPT 10/29/80 | CHECK DGT 11/25/80 | APRVD DJF 11/25/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUANIST	WILCOM PART/DWG	DOR SIZ	DOR REV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
001600	RES, STBL FILM: 1%, .25W 3.16 K R 47	11	00110338			TRW/IRC 80100781	T055 3.16 K	
001700	RES, STBL FILM: 1%, .25W 3.48 K R 37	11	00109314			TRW/IRC 80100781	T055 3.48 K	
001800	RES, STBL FILM: 1%, .25W 6.81 K R 48	11	00110726			TRW/IRC 80100781	T055 6.81 K	
001825	RES, STBL FILM: 1%, .25W 10.0 K R 63	11	00102061			TRW/IRC 80100781	T055 10.0 K	
001850	RES, STBL FILM: 1%, .25W 14.7 K R 24	11	00102160			TRW/IRC 80100781	T055 14.7 K	
001875	RES, STBL FILM: 1%, .25W 16.5 K R 2	11	00110734			TRW/IRC 80100781	T055 16.5 K	
001900	RES, STBL FILM: 1%, .25W 21.5 K R 49	11	00109629			TRW/IRC 80100781	T055 21.5 K	
001950	RES, STBL FILM: 1%, .25W 28.7 K R 61	11	00110841			TRW/IRC 80100781	T055 28.7 K	
002000	RES, STBL FILM: 1%, .25W 49.9 K R 3,5,6,8	41	00102620			TRW/IRC 80100781	T055 49.9 K	
002100	RES, STBL FILM: 1%, .25W 68.1 K R 50	11	00110981			TRW/IRC 80100781	T055 68.1 K	
002170	RES, STBL FILM: 1%, .25W 475 K R 27,60	21	00111484			TRW/IRC 80100781	T055 475 K	
002200	RES, STBL FILM: 1%, 4W 100 OHM R 10,32	21	00107334			TRW/IRC 80100781	GS3 100 OHM	
002225	RES, STBL FILM: 1%, 4W 301 OHM R 51,52	21	00114876			TRW/IRC 80100781	GS3 301 OHM	
002260	RES, STBL FILM: 5%, .25W 6.8 OHM R 19	11	00103762			TRW/IRC 80100781	RG1/4 6.8 OHM	
002290	RES, STBL FILM: 1%, .25W 10.0 OHM R 64	11	00100206			TRW/IRC 80100781	T055 10.0 OHM	

P A R T S L I S T

TITLE OR DESCRIPTION

PC ASSEMBLY, INTERFACE & POWER SUPPLY 0303

PART/DRAWING # 20014445 | DWG SIZE C | DWG REV A | P/L REV A

PREP SPT 10/29/80
CHECK DGT 11/25/80
APRVD DJF 11/25/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	DR	IR	VI	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
0023001	RES, STBL FILM: 1%, .25W 475 OHM R 11,15	2	1	00108A94				TRW/IRC 60100781	T055 475 OHM	
0024001	RES, STBL FILM: 1%, .25W 1.00 K R 14,21,55,56	4	1	00109157				TRW/IRC 60100781	T055 1.00 K	
0025001	RES, STBL FILM: 1%, .25W 2.21 K R 13	1	1	00109223				TRW/IRC 60100781	T055 2.21 K	
0025501	RES, STBL FILM: 1%, .25W 4.75 K R 54	1	1	00110544				TRW/IRC 60100781	T055 4.75 K	
0026001	RES, STBL FILM: 1%, .25W 10.0 K R 28,29,34,65	4	1	00102061				TRW/IRC 60100781	T055 10.0 K	
0027001	RES, STBL FILM: 1%, .25W 12.1 K R 18	1	1	00110577				TRW/IRC 60100781	T055 12.1 K	
0028001	RES, STBL FILM: 1%, .25W 20.0 K R 4,7	2	1	00109603				TRW/IRC 60100781	T055 20.0 K	
0029001	RES, STBL FILM: 1%, .25W 22.1 K R 16,33,36,64	4	1	00109652				TRW/IRC 60100781	T055 22.1 K	1604
0030001	RES, STBL FILM: 1%, .25W 47.5 K R 17	1	1	00102608				TRW/IRC 60100781	T055 47.5 K	
0032001	RES, STBL FILM: 1%, .25W 274 K R 20,59,62	3	1	00111336				TRW/IRC 60100781	T055 274 K	
0033001	RES, STBL FILM: 1%, .25W 475 K R 12	1	1	00111484				TRW/IRC 60100781	T055 475 K	
0034001	RES, STBL FILM: 1%, .25W 1.00 MEG R 26	1	1	00111617				TRW/IRC 60100781	T055 1.00 MEG	
0035001	RES, WIREWOUND: 5%, 5W 5.6 OHM R 1	1	1	00114926				CLAROSTAT 60100195	VC5E 5.6 OHM	
0037001	POT, TRIM: 3/8 SQ E/A, 18T 20 K R 25	1	1	00114181				NOTE 60103975	NOT FOR NEW DESIGNS	
0038001	CAP,TANT FLEC: 10%,35V 1.0 UF C 20	1	1	00301978				ITT SEMI 60101029	TAP-A1.0K35	

P A R T S L I S T

TITLE OR DESCRIPTION

PC ASSEMBLY, INTERFACE & POWER SUPPLY 0303

PART/DRAWING # 20014445 | DWG SIZE C | DWG REV A | P/L REV A

PREP SPT 10/29/80
CHECK OGT 11/25/80
APRVD DJF 11/25/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUANIST	WILCOM PART/DWG	ORIDRIVI	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
003900	CAP, TNT ELEC:DIP RAD 10% 35V 10 UF C 1,13-18	71	00301937		ITT SEMI 60101029	TAP-A10K35	
003950	CAP, TNT ELEC:DIP RAD 20% 10V 33 UF C 3,4	21	00301952		ITT SEMI 60101029	TAP-A33M10	
004000	CAP, RADL MONO: 20% 50V Z5U .1 UF C 5-A,19	51	00302190		SPRAGUE 60100690	1C25Z5U104M050B	
004100	CAP, RDL MONO:20% 50V Z5U 1.0 UF C 12	11	00302182		SPRAGUE 60100690	2C37Z5U105M050B	
004300	CAP, DISC: 10%, 500V X5F 47 PF C 9	11	00300160		TUSONIX 60107364	831-000-X5F0-470K	
004400	CAP, ALUM ELEC: RDL, 16V 100 UF C 10,11	21	00301473		SPRAGUE 60100690	502D107G016CC1C	
004500	TRANSISTOR, NPN POWER Q 1	11	00500249		MOTO SEMI 60100872	MJE340	
004550	TRANSISTOR, NPN HIGH VOLTAGE Q 7	11	00500082		MOTO SEMI 60100872	MPSA42	
004600	TRANSISTOR, NPN AMPLIFIER Q 2,3	21	00500868		MOTO SEMI 60100872	MPS6521	
004620	TRANSISTOR, PNP POWER Q 4	11	00500322		MOTO SEMI 60100872	MJE371	
004630	TRANSISTOR, N-CHAN POWER FET Q 5	11	00501502		SILICONIX 60100971	VN10KM	
004640	TRANSISTOR, NPN HIGH CURRENT Q 8	11	00501536		RCA SEMI 60101104	2N6101	
004700	IC, LINEAR, POS 5-VOLT, TO-220 U 1	11	00706291		NAT'L SEMI 60100967	LM340T-5	
004800	IC, LINEAR, VOLT COMP, 8-PIN DIP U 9	11	00700096		MOTO SEMI 60100872	LM311P1	
004900	IC,LIN,LO PWR, JFET-INPUT,OP AMP U 4,7	21	00705772		TI SEMI 60100898	TL064ACN	

P A R T S L I S T

TITLE OR DESCRIPTION

PC ASSEMBLY, INTERFACE & POWER SUPPLY 0303

PART/DRAWING # 20014445 | DWG SIZE C | DWG REV A | P/L REV A

PREP SPT 10/29/80
CHECK OGT 11/25/80
APRVD OJF 11/25/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	DR SZ	DR RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
005000	IC, LINEAR, 1/2W AUDIO AMPLIFIER U 5	1	1	00706010			MOTO SEMI 60100872	MC1306P	
005100	IC, LINEAR, LOW DRIFT 2.5V REFERENCE U 2	1	1	00705764			ANALOG DEV 60103363	AD580JH	
005200	IC, OPTOELECT, LED/NPN-XSTR ISO U 8	1	1	00700518			GE SEMI 60103405	H11D1	
005300	IC, CMOS, MONO VOLTAGE CONVERTER U 3	1	1	00706457			INTERSIL 60101003	ICL7660CPA	
005400	IC, CMOS, QUAD ANALOG TRANS GATE U 6	1	1	00700039			SILICONIX 60100971	DG201CJ	
005500	VARISTOR, SIGNAL: 1 MA @ .58V MIN RV 1	1	1	04000548			VECO 60101425	SV100A	
005550	VARISTOR, PROTEC, MAX DC VOLT, 26V RV 2	1	1	04000519			GE SEMI 60103405	V33ZA1	
005600	DIODE, RECTIFIER, 1A D 1-11	11	1	04000824			MOTO SEMI 60100872	1N4005	
005700	DIODE, ZENER, 5.1V +/-5% VR 1-4	4	1	04000097			ITT SEMI 60101029	1N751A	
005910	FUSE, PC MOUNT 2 A F 1	1	1	05003108			LITTLEFUSE 60101585	275002	
005920	HEADER, STR POST, .100 OC 10 POS J 6,7	2	1	05200316			AMP 60100062	1-87348-0	
005930	HEADER, STR POST, .100 OC 6 POS J 9	1	1	05200332			AMP 60100062	87348-6	
005940	HDR, STR POST: .100 OC 4 POS J 8	1	1	05201652			AMP 60100062	87348-4	
005941	SCKT,IC,LO PROF: GOLD 8 PIN	3	1	05016274			T I METAL 60106093	C93-08-02	1604
005945	SCKT,IC,LO PROF: GOLD 14 PIN	2	1	05016290			T I METAL 60106093	C93-14-02	

PARTS LIST

TITLE OR DESCRIPTION

PC ASSEMBLY, INTERFACE & POWER SUPPLY 0303

PART/DRAWING # 20014445 | DWG SIZE C | DWG REV A | P/L REV A

PREP SPT 10/29/80
CHECK DGT 11/25/80
APRVD DJF 11/25/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	DR SZ	DR RV	SOURCE INFORMATION: MFR NAME/NO.	MFR PART NO.	ECO NO.
005950	SCKT,IC,LO PROF: GOLD 16 PIN J 4,5,U6	3		05016524			T I METAL 60106093	C93-16-02	1604
005960	SWITCH ASSEMBLY, PUSH BUTTON	1		01103035	A	-	WILCOM 60000015	0303- -	
006000	MS, PHIL, PAN HD 4-40 X .250	1		04402041	R	-	WILCOM 60000015	S P 4-40X.250	
006100	LOCKWASHER, MEL SPRING #4	1		04600599	R	-	WILCOM 60000015	W H 4	
006200	NUT, HEX, 1/4 AF 4-40	1		04600581	R	-	WILCOM 60000015	N H 4-40	
006250	WIRE, HOOKUP 22AWG (SOLID) WHT	A/R		04801106			BELDEN 60101250	83404 WHT	1604
006300	SCHEMATIC, INTERFACE & POWER SUPPLY	REF		50010842	D	E	WILCOM 60000015	0303-B -	1604

******* END OF PARTS LIST *******

P A R T S L I S T

TITLE OR DESCRIPTION

PC ASSY, -48V SUPPLY (A6) 0303

PART/DRAWING # 20014288 | DWG SIZE B | DWG REV - | P/L REV -

PREP JMT 09/18/80
CHECK SPT 10/23/80
APRVD DJF 10/30/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	LST	MILCOM PART/DWG	DPI	DRI SZ	DRI RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
0001001	PC BOARD, -48V SUPPLY	1	1	00905380	18	-	-	WILCOM 60000015	0303- -	
0002001	SOLDER MASK FOR 00905380	REF		50009646	18	-	-	WILCOM 60000015	0303- -	
0004001	RES, STBL FILM: 1%, .25W 1.50 K R 1	1	1	00110346				TRW/IRC 60100781	T055 1.50 K	
0005001	THERMISTOR,CER CURRENT LIMIT,40 OHM RT 1	1	1	04001129				MIDWEST 60105129	CL0100.11	
0006001	CAP, ALUM ELEC: AXL 75V 150 UF C 1	1	1	00315143				SPRAGUE 60100690	39D157G075FJ0	
0007001	TRANSISTOR, NPN POWER Q 1	1	1	00500348				MOTO SEMI 60100872	MJE521	
0008001	DIODE, RECTIFIER, 1A D 1-4,6,7	6	1	04000824				MOTO SEMI 60100873	1N4005	
0009001	DIODE, ZENER, 51V +/-5% VR 5	1	1	04001137				MOTO SEMI 60100872	1N5252B	
0010001	HEADER, STR POST, .100 OC 6 POS J 19	1	1	05200332				AMP 60100062	87348-6	
0011001	HDR,STR POST: .156 OC W/LOCK 3 POS J 1A	1	1	05200126				MOLEX 60101847	09-65-1031	
0013001	SCHEMATIC, -48V SUPPLY (A6)	REF		50009638	18	-	-	WILCOM 60000015	0303- -	

******* END OF PARTS LIST *******

PARTS LIST

TITLE OR DESCRIPTION

CPU CHASSIS ASSEMBLY 0303

PART/DRAWING # 20014403

DWG SIZE D DWG REV C P/L REV C

PREP SPT 10/22/80
CHECK DGT 11/25/80
APRVD DJF 11/25/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION		QUANT	ST	WILCOM PART/DWG	DR SZ	DR REV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
000100	CHASSIS DETAIL, CPU		1	1H	04413514	1H	1A	WILCOM 60000015	0303- -	
000150	PC ASSY, -48V SUPPLY	(A6)	1	1I	20014288	1B	1-	WILCOM 60000015	0303- -	
000200	PC ASSEMBLY, CPU/TONE GENERATOR	(A3)	1	1I	20014585	1C	1A	WILCOM 60000015	0303- -	11429
000300	BRACKET, FUSE HOLDER		1	1I	04412011	1A	1-	WILCOM 60000015	0303-	
000400	BRACKET, SWITCH		1	1I	04407870	1A	1-	WILCOM 60000015	0196	11403
000450	SHAFT, SWITCH OPERATING		1	1I	04407896	1A	1-	WILCOM 60000015	0196CK	
000500	TRANSFORMER, POWER		1	1I	04202015	1B	1-	WILCOM 60000015	0303- -	
000600	SW, TOG, MINIATURE PWR, DPDT		1	1I	01102680			C&K 60101128	9201SH3ZQE	
000700	BATTERY, NI-CAD: 7.2 V, 1.2 AH		1	1I	05020219			SAFT 60104940	816511-6	
000800	BUSHING, PANEL: .250" SHAFT		1	1I	05019815			H H SMITH 60101300	119	
000900	FUSE HOLDER, 1/4X1-1/4, BLK, RND		1	1I	05000427			NOTE 60103975	NOT FOR NEW DESIGNS	
001000	FUSE, NORM: (1/4X1-1/4)	500 MA	1	1I	05000328			LITTLEFUSE 60101565	312.500	
001050	HOUSING, .156 OC LOCKING	3 POS	1	1I	05200092			MOLEX 60101847	09-50-3031	11382
001100	CONNECTOR, PLUG WITH EARS	4 POS	1	1I	05203203			MOLEX 60101847	03-06-2041	11382
001200	HOUSING, .100 OC LOCKING	6 POS	1	1I	05201769			AMP 60100063	1-87175-3	

P A R T S L I S T

TITLE OR DESCRIPTION

* CPU CHASSIS ASSEMBLY 0303 *

PART/DRAWING # 20014403 | DWG SIZE D | DWG REV C | P/L REV C

PREP SPT 10/22/80
CHECK DGT 11/25/80
APRVD DJF 11/25/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	DR SZ	DR PV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
001300	CONTACT, MALE, TIN PLATE, 18-24GA	41		05201009			MOLEX 60101847	02-06-2103	
001400	CONTACT, LOCKING, 22-26 AWG	51		05201843			AMP 60100062	87124-2	
001450	CONT,FEM,TIN PL,22-26AWG(.065 MX OD)	21		05200886			MOLEX 60101847	08-50-0108	1382
001500	KEYING DEVICE	11		05201835			AMP 60100062	87179-1	
001600	MS, PHIL, PAN HD 4-40 X .250	61		04602041	R	-	WILCOM 60000015	S P 4-40X.250	1403
001650	MS, PHIL, PAN HD 4-40 X .312	41		0460205A	R	-	WILCOM 60000015	S P 4-40X.312	1403
001700	MS, PHIL, PAN HD 6-32 X .250	11		04602124	R	-	WILCOM 60000015	S P 6-32X.250	1403
001750	MS, PHIL, PAN HD 6-32 X .375	21		04602140	R	-	WILCOM 60000015	S P 6-32X.375	1403
001800	MS, PHIL, RND HD 6-32 X 2.000	21		04602751	R	-	WILCOM 60000015	S S 6-32X2.000	
001900	LOCKWASHER, HEL SPRING #4	61		04600599	R	-	WILCOM 60000015	W H 4	1403
002000	LOCKWASHER, HEL SPRING #6	81		04600A21	R	-	WILCOM 60000015	W H 6	1403
002050	LOCKWASHER, EXT TOOTH #6	21		04600847	R	-	WILCOM 60000015	W E 6	1403
002100	WASHER, FLAT #6	21		04601027	R	-	WILCOM 60000015	W F 6	
002200	WSHR, FLAT, (1/2 OD,1/32 THK) #6	21		04603072	R	-	FED SCREW 60500170	97419	
002300	GROMMET, CONTINUOUS	11		05003736			RICHCO PLA 60103314	SNGS-2	

P A R T S L I S T

TITLE OR DESCRIPTION

	PART/DRAWING #	DWG SIZE	DWG REV	P/L REV		
CPU CHASSIS ASSEMBLY 0303	20014403	D	C	C	PREP SPT	10/22/80
					CHECK DGT	11/25/80
					APRVD DJF	11/25/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	DR SZ	DR REV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
0024001	CABLE ANCHOR, NYLON: ADHESIVE BACK	11		05003702			PANDUIT 60101581	ARMM-A	
0025001	CABLE TIE (3/4" MAX DIA BUNDLE)	11		05001227			TYTON 60103926	T18R	
0026001	TUBING, HEAT SHRINK, 1/8 DIA BLK	A/R		04800173			ALPHA 60101284	FIT 221-1/8" BLK	
0026501	TUBING, HEAT SHRINK, 1/4 DIA BLK	A/R		04800165			ALPHA 60101284	FIT 221-1/4" BLK	
0027001	TUBING, HEAT SHRINK, 1/2 DIA YEL	A/R		04800223			ALPHA 60101284	FIT 221-1/2" YEL	
0028001	WIRE, HOOKUP 22AWG (7X30) BLK	A/R		04800462			BELDEN 60101250	8503 BLK	11382
0029001	WIRE, HOOKUP 22AWG (7X30) BRN	A/R		04800346			BELDEN 60101250	8503 BRN	11382
0030001	WIRE, HOOKUP 22AWG (7X30) RED	A/R		04800363			BELDEN 60101250	8503 RED	11382

******* END OF PARTS LIST *******

P A R T S L I S T

TITLE OR DESCRIPTION:

* MAIN CHASSIS ASSEMBLY 0303 *

PART/DRAWING # 20014577 | DWG SIZE C | DWG REV B | P/L REV B | PREP DGT 11/21/80 | CHECK DGT 12/10/80 | APRVD DJF 12/12/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION		QUAN	ST	WILCOM PART/DWG	DR SZ	DR RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
000100	PANEL (SN 101 AND ABOVE)		1		04413563	C	-	WILCOM 60000015	0303- -	
000200	MADE-FROM		****							
000300	PANEL DETAIL		REF		04411831	C	-	WILCOM 60000015	0303	
000400	PANEL LAYOUT		REF		50010263	B	-	WILCOM 60000015	0303- -	
000500	MAIN CHASSIS, FASTENER ASSEMBLY		1		20014163	A	-	WILCOM 60000015	0303- -	
000600	PC ASSEMBLY, INTERFACE & POWER SUPPLY		1		20014445	C	A	WILCOM 60000015	0303- -	
000700	PC ASSEMBLY, KEYBOARD	(A4)	1		20012456	C	B	WILCOM 60000015	0303- -	
000800	HARNESS ASSEMBLY, MAIN		1		20010724	C	A	WILCOM 60000015	0303- -	
000900	CPU CHASSIS ASSEMBLY		1		20014403	D	C	WILCOM 60000015	0303- -	
001000	CABLE ASSEMBLY		2		20012522	B	-	WILCOM 60000015	0303- -	
001100	SEND LEVEL SWITCH ASSEMBLY	(A7)	1		20012472	B	A	WILCOM 60000015	0303- -	
001200	SWITCH, TOGGLE, 4POT, SOLDER TERM		1		01100189			ALCOSWITCH 60101060	MTA-406N	
001300	POT, CTRL: 1/2 DIA, 1T	10 K	1		00108233			A-B 60101433	WA2G056S103UA	11486
001400	SPEAKER GRILLE		1		04412086	A	-	WILCOM 60000015	0303- -	
001500	LOUDSPEAKER, 1.5 INCH, 8 OHM		1		05400858			MOUSERCORP 60105152	25SP016	

P A R T S L I S T

TITLE OR DESCRIPTION

	PART/DRAWING #	DWG SIZE	DWG REV	P/L REV		
MAIN CHASSIS ASSEMBLY 0303	20014577	C	B	B	PREP DGT	11/21/80
					CHECK DGT	12/10/80
					APRVD DJF	12/12/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	WILCOM PART/DWG	DR SZ	DR RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
001600	LED, RED DIF, HI INTEN T 1-3/4 CYL	11	04001095		A	H.P. 60100393	5082 4655	
001650	LED HOLDER, RED	41	05001771		A	VISUALCOMM 60101850	CLF280RTP	11403
001700	KNOB, BLK: 1/2 DIA 1/8 BUSH	11	05001649		A	BUCKEYE 60100153	PS-50-1-BLK	
001800	CABLE ANCHOR, NYLON: ADHESIVE BACK	11	05003702		A	PANDUIT 60101581	ABMM-A	
001900	CABLE TIE (3/4" MAX DIA BUNDLE)	11	05001227		A	TYTON 60103926	T18R	
002000	JACK, PH: 3 COND (T CLSD/R OPN CKTS)	11	05202361		A	SWCRAFT 60100732	N-113B	
002100	JACK, PH:3 COND(OBL OPN,SLDR TERM)	11	05202312		A	SWCRAFT 60100732	N-112-B	
002150	RES, STBL FILM: 1%, .25W 10.0 K R 1	11	00102061		A	TRW/IRC 60100781	T055 10.0 K	11403
002200	JACK, PH:3 COND(OBL OPN,SLDR TERM)	61	05202106		A	SWCRAFT 60100732	M-112B	
002300	VARISTOR, PROTEC, MAX DC VOLT, 66V RV 1	11	04001145		A	GE SEMI 60103405	V82ZA2	11403
002400	HOUSING, .100 DC LOCKING 4 POS P 8	11	05201751		A	AMP 60100062	1-87175-0	
002500	CONTACT, LOCKING, 22-24 AWG	31	05201843		A	AMP 60100062	87124-2	
002600	KEYING DEVICE	11	05201835		A	AMP 60100062	87179-1	
002700	HOLD COIL	11	04201901	B	A	WILCOM 60000015	0303- -	
002800	HANDLE, ROUND, INTERNAL	21	05020250		A	POSITRONIC 60105061	25RA-A-C06A82	

P A R T S L I S T

TITLE OR DESCRIPTION

* MAIN CHASSIS ASSEMBLY 0303 *

PART/DRAWING # 20014577 | DWG SIZE C | DWG REV B | P/L REV B

PREP DGT 11/21/80
CHECK DGT 12/10/80
APRVD DJF 12/12/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	IST	WILCOM PART/DWG	DR SZ	DR RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
002900	TUBING, HEAT SHRINK, 1/8 DIA BLK	A/R		04A00173			ALPHA 60101284	FIT 221-1/8" BLK	
003000	LOCKWASHER, HEL SPRING #2	4		04A00573	IP	-	WILCOM 60000015	W H 2	
003100	LOCKWASHER, HEL SPRING #4	12		04A00599	IR	-	WILCOM 60000015	W H 4	
003200	LOCKWASHER, HEL SPRING #8	4		04A01209	IR	-	WILCOM 60000015	W H 8	
003300	WASHER, FLAT #4	6		04A00730	IR	-	WILCOM 60000015	W F 4	
003350	WASHER, FLAT;OD 9/16,THK.020,ID 3/8	7		04A03429	IR	-	WILCOM 60000015	W F #332-020-8-9	11403
003400	MS, PHIL, PAN HD 4-40 X .188	2		04A02843	IR	-	WILCOM 60000015	S P 4-40X.188	
003500	MS, PHIL, PAN HD 4-40 X .312	2		04A02058	IR	-	WILCOM 60000015	S P 4-40X.312	
003600	MS, PHIL, PAN HD 4-40 X .250	4		04A02041	IR	-	WILCOM 60000015	S P 4-40X.250	
003700	MS, PHIL, PAN HD 4-40 X .375	6		04A02066	IR	-	WILCOM 60000015	S P 4-40X.375	
003800	MS, PHIL, PAN HD 8-32 X .375	4		04A02256	IR	-	WILCOM 60000015	S P 8-32X.375	
003900	MS, PHIL, FLAT HD 2-56 X .375	4		04A03114	IR	-	WILCOM 60000015	S F 2-56X.375	
004000	MS, PHIL, FLAT HD 4-40 X .312	4		04A02421	IR	-	WILCOM 60000015	S F 4-40X.312	
004100	MS, PHIL, FLAT HD 4-40 X .375	2		04A02439	IR	-	WILCOM 60000015	S F 4-40X.375	
004200	NUT, HEX, 3/16 AF 2-56	4		04A00540	IP	-	WILCOM 60000015	N H 2-56	

P A R T S L I S T

TITLE OR DESCRIPTION

	PART/DRAWING #	DWG SIZE	DWG REV	P/L REV	PREP DGT	11/21/80
* MAIN CHASSIS ASSEMBLY	20014577				CHECK DGT	12/10/80
0303		C	A	A	APRVD DJF	12/12/80

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUANTITY	WILCOM PART/DWG	DR SZ	DR REV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
004300	NUT, HEX, 1/4 AF 4-40	2	04600581	P	-	WILCOM 60000015	N M 4-40	
004400	NUT, HEX, 1/2 AF 3/8-32	1	04600011	P	-	WILCOM 60000015	N M .375-32	
004500	SIMPLIFIED SCHEMATIC & INTERCONNECT DIAGRAM	REF	50010255	D	-	WILCOM 60000015	0303- -	

******* END OF PARTS LIST *******

P A R T S L I S T

TITLE OR DESCRIPTION	PART/DRAWING #	DWG SIZE	DWG REV	P/L REV	PREP SPT	10/22/80
HARNESS ASSEMBLY, MAIN 0303	20010724	C	A	-	CHECK	/ /
					APRVD	/ /

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	IST	WILCOM PART/DWG	DR SZ	DR REV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
0001001	HOUSING, .100 OC LOCKING 6 POS P 19	1	1	05201769			AMP 60100062	1-87175-3	
0002001	HOUSING, .100 OC LOCKING 10 POS P 6,7	2	1	05201785			AMP 60100062	2-87175-1	
0003001	CONTACT, LOCKING, 22-26 AWG	21	1	05201843			AMP 60100062	87124-2	
0004001	KEYING DEVICE	3	1	05201835			AMP 60100062	87179-1	
0005001	WIRE, HOOKUP 22AWG (7X30) BLK	A/R	1	04800462			BELDEN 60101250	8503 BLK	
0006001	WIRE, HOOKUP 22AWG (7X30) RED	A/R	1	04800363			BELDEN 60101250	8503 RED	
0007001	WIRE, HOOKUP 22AWG (7X30) YEL	A/R	1	04800322			BELDEN 60101250	8503 YEL	
0008001	WIRE, HOOKUP 22AWG (7X30) GRN	A/R	1	04800405			BELDEN 60101250	8503 GRN	
0009001	WIRE, HOOKUP 22AWG (7X30) BLU	A/R	1	04800439			BELDEN 60101250	8503 BLU	
0010001	WIRE, HOOKUP 22AWG (7X30) WHT	A/R	1	04800355			BELDEN 60101250	8503 WHT	
0011001	WIRE, HOOKUP 22AWG (7X30) WHT/BLK	A/R	1	04800389			BELDEN 60101250	8503 WHT/BLK	
0012001	WIRE, HOOKUP 22AWG (7X30) WHT/RED	A/R	1	04800496			BELDEN 60101250	8503 WHT/RED	
0013001	WIRE, HOOKUP 22AWG (7X30) WHT/YEL	A/R	1	04800470			BELDEN 60101250	8503 WHT/YEL	
0014001	WIRE, HOOKUP 22AWG (7X30) WHT/GRN	A/R	1	04800454			BELDEN 60101250	8503 WHT/GRN	
0015001	WIRE, HOOKUP 22AWG (7X30) WHT/BLU	A/R	1	04800397			BELDEN 60101250	8503 WHT/BLU	

P A R T S L I S T

TITLE OR DESCRIPTION	PART/DRAWING #	DWG SIZE	DWG REV	P/L REV	PREP SPT 10/22/80
HARNESS ASSEMBLY, MAIN 0303	20010724	C	A	-	CHECK / /
					APRVD / /

LINE NUMBER	TITLE OR DESCRIPTION / REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	DR SZ	DR REV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
001600	HARNESS SHEET	REF		50009950	A	A	WILCOM 60000015	0303- -	

******* END OF PARTS LIST *******

P A R T S L I S T

TITLE OR DESCRIPTION	PART/DRAWING #	DWG SIZE	DWG REV	P/L REV	
CASE ASSEMBLY 0303	20014569	C	-	-	PREP DGT 12/08/80 CHECK DGT 12/09/80 APRVD DJF 12/12/80

LINE NUMBER	TITLE OR DESCRIPTION REFERENCE DESIGNATION	QUAN	ST	WILCOM PART/DWG	DR SZ	DR RV	SOURCE INFORMATION MFR NAME/NO.	MFR PART NO.	ECO NO.
000100	CASE	1	1	04412102	C	B	WILCOM 60000015	0303- -	
000300	HINGE, FEMALE (WITH STOP)	2	1	05001391			NIELSON 60100518	3517 NE	
000400	CATCH	1	1	05001375			ZERO 60100856	ZSP2-220-2	
000500	RUBBER BUMPER, 3/8 HIGH	4	1	05001300			RUSSELLIND 60102050	REC-20958	
000600	HARNESS ASSEMBLY, AC POWER	1	1	20014395	A	A	WILCOM 60000015	0303- -	
000700	STUD, OVAL HEAD (WITH LOCKING RING)	2	1	04600359			SIMMONS 60100674	O-2	
001000	RIVET, TUBLR, S NI PLATE 4/16 L	7	1	04600367			ACME RIV 60101458	JT-218X4/16 S NI	
001100	MS, PHIL, PAN HD 4-40 X .375	2	1	04602066	R	-	WILCOM 60000015	S P 4-40X.375	
001200	MS, PHIL, PAN HD 6-32 X .375	4	1	04602140	R	-	WILCOM 60000015	S P 6-32X.375	
001300	WASHER, FLAT 3/8 ID	4	1	04600292	R	-	WILCOM 60000015	W F 3/8	
001400	WASHER, FLAT, NYLON (THIN) #4	2	1	04600136			AMATOM 60100039	2202-N116	
001500	LOCKWASHER, HEL SPRING #4	2	1	04600599	R	-	WILCOM 60000015	W H 4	
001600	NUT, HEX, 1/4 AF 4-40	2	1	04600581	R	-	WILCOM 60000015	N H 4-40	
001700	LABEL, MODEL & SERIAL NO. (T303)	1	1	06804546	A	-	WILCOM 60000015	0303- -	

******* END OF PARTS LIST *******

10.0 DIFFERENCE DATA

10.1 General - This section of the manual indicates information relative to changes in circuitry, operation or features of the Model T303B Signaling Sender.

10.1.01 Each change is referenced to a specific engineering change order (ECO) or engineering change notice (ECN). The ECO/ECN number and the serial number(s) of units affected are located in the left column. The specific reason for the change is indicated in capital letters with the details of the change immediately following.

10.1.02 To facilitate component location/replacement, the complete reference designator is called out. In addition, the Wilcom part number and brief component description are listed for all component changes. Where necessary, a drawing is included that shows the changes.

MODEL T303/T303B
MANUAL CHANGE INFORMATION

CHANGE	DESCRIPTION
	PROVIDE THE PROPER CHARGING CURRENT TO THE BATTERIES
#1468 All units	Resistor A2R1 on the Interface & Power Supply assembly was changed from a select value to a 2 ohm ±10% 5 watt wirewound resistor.
	PROVIDE E&M SIGNALING WITH 2-WIRE TRANSMISSION CAPABILITY
#1486 SN 201 & up	Resistor A2R27 on the Interface & Power Supply assembly was removed. A2R27 was in series with A2U7B pin 7 and A2U4B pin 6. Location of A2R3 & A2C6 were reversed. Location of A2R6 & A2C5 were also reversed. Resistor A2R67 and A2R68 both 49.9 k ohms were installed. A2R67 from junction of A2R6 and A2C6 to the "engaged" pin of the 2W LOOP switch section 4. A2R68 from junction of A2R3 and A2C5 to the "engaged" pin of the 2W LOOP switch section 4. J17 changed to same jack as J16. Resistor R1 was removed from between the tips of J16 and J17 and a connection established directly from the tip and sleeve of J16 to the "make contact" at the tip of J17.
	PREVENT UNIT FAILURE DUE TO INCORRECT LOGIC THRESHOLD
#1604/1614 SN 251 & up ALL REPAIRS	Resistor A2R35, on the Interface and Power Supply assembly, replaced by an insulated jumper wire.
	PROTECT CIRCUITRY WHEN WRONG LINE VOLTAGE IS CONNECTED
#1569 SN 276 & up ALL REPAIRS	Fuse A2F2, on the CPU Chassis Assembly, changed from 1/2 amp. to 1/8 amp.
	REDUCE INTERNAL NOISE PICK-UP
#1717 SN 361 & up ALL REPAIRS	Change the following components on the Interface & Power Supply Assembly; Resistor A2R26 from 1M ohm to 49.9k ohm and Capacitor A2C19 from .1 µf to .33 µf.

Appendix A

DTMF Pulsing

Digit	Composite tone pair frequencies (Hz)
1	697 + 1209
2	697 + 1336
3	697 + 1477
4	770 + 1209
5	770 + 1336
6	770 + 1477
7	852 + 1209
8	852 + 1336
9	852 + 1477
*	941 + 1209
0	941 + 1336
#	941 + 1477
A	697 + 1633
B	770 + 1633
C	852 + 1633
D	941 + 1633

Appendix B

MF Pulsing

Digit	Composite tone pair frequencies (Hz)
1	700 + 900
2	700 + 1100
3	900 + 1100
4	700 + 1300
5	900 + 1300
6	1100 + 1300
7	700 + 1500
8	900 + 1500
9	1100 + 1500
0	1300 + 1500
KP	1100 + 1700
ST	1500 + 1700
STP	900 + 1700
ST2P	1300 + 1700
ST3P	700 + 1700

MP MASTER
MA30811